

ITEMS OF INTEREST.

VOL. XVII.

MARCH, 1895.

No. 3.

ORIGINAL COMMUNICATIONS.

PORCELAIN DENTAL ART.

W. A. Capon, D.D.S., Philadelphia.

[CONTINUED FROM PAGE 68.]

Almost every dentist will occasionally have a case that requires considerable thought, and cause him to doubt his ability to overcome the obstacle presented—knowing that a failure would mean death to some cherished ideas; but, if successful, the way be opened to reputation and professional advancement. With such alternatives one may be excused for hesitating; but “nothing ventured nothing won” is a good motto, and with this thought I accepted the chances, and take pleasure in presenting the following case:

Rev. Dr. F., of Germantown, Pa.; aged fifty-nine; of excellent health and constitution; early loss of molars through masticating entirely on front teeth, resulting in condition shown in Fig. 1.

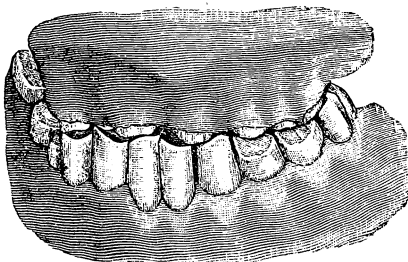


FIG. 1.

The gentleman being a public speaker it was important that a plate should be a last resort. Therefore, the work of molars must continue to be done by oral teeth, as the remaining molars were not strong enough for bridges, and also had no antagonistic teeth on right upper or left lower jaws. The first procedure was trimming and crowning all the lower teeth with gold caps, having broad cutting surfaces to answer for chewing. The bite was raised by gold capping bicuspids on both sides, leaving porcelain jackets

free of contact, and appeared when finished as in Fig. 2. Though worn almost to the gum line, the pulps were alive in all teeth except two lower central incisors, which were loose, but held more

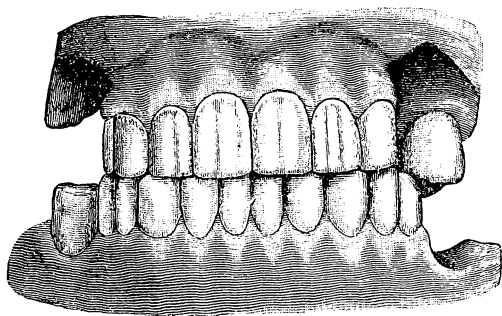


FIG. 2.

firmly by uniting the crowns. Being so worn necessitated very close adaptation to the necks, and at the same time non-irritation of the tissues. The bite was raised five-eighths of an inch; an unusual extent. We feared that such a change would result in considerable inconvenience in speaking and eating, but after short practice the articulation was comfortable and satisfactory, and has remained so after three years; making sixteen teeth do the work intended for thirty-two.

Mrs. D., of Baton Rouge, La.; aged fifty; of bilious-nervous temperament; had extreme protrusion of upper teeth, also of poor structure, and saved only by continuous attention and use of plastic fillings, as fairly represented in Fig. 3, excepting that disfigure-

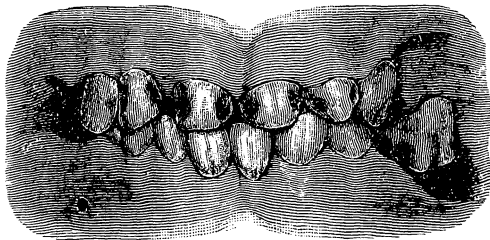


FIG. 3.

ment of expression by pushing out of lip, by excessive angle of teeth, does not appear. As in the former case the pulps were alive, and great care was required to prepare the teeth for jackets without giving pain, as considerable had to be ground off of the cutting edges to allow of a more natural angle. The lower struck fairly on palatine portion of upper incisors and cuspids, having

worn a groove by constant contact. In making this crown, irido-platinum was used to give a hard surface for lower teeth to strike, as there was no means of preventing it. The improvement to this

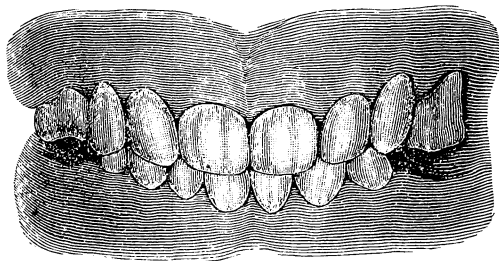


FIG. 4.

lady's appearance was very marked, and at the same time protection of natural teeth insured, giving a biting surface of hard metal that has taken the whole force of the jaws for over three and a half years, and is still in good condition.

Mr. W., of Lancaster Co., Pa.; aged forty-seven; strong and healthy; of nervo-sanguine temperament; had teeth similar to Fig. 1, but offering better means of remedy. Fig. 5 shows this condition at time of presentation. The teeth were of good struc-

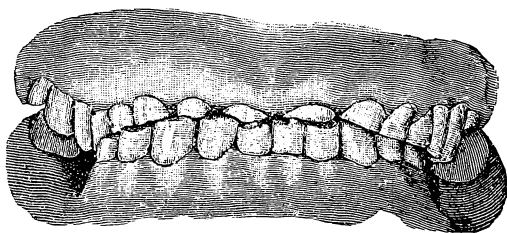


FIG. 5.

ture and very strong foundations. The teeth were alive and worn to this condition by loss of lower first and second molars on both sides, and by the cutting edges coming in direct contact. The lower spaces were bridged, and bite raised a quarter of an inch. The upper bicuspid were gold capped, allowing six porcelain jackets to articulate safely and naturally, as in Fig. 6. This work has been doing good service for more than two years, though the patient is a large man and indulges in tobacco, which means continual wear and force.

Fig. 7 represents the mouth of a dentist who resides in the vicinity of Philadelphia, aged thirty-four, and troubled with poor health and misfortune of rapid decay on cervical margins of all

his teeth. They have required constant attention, and yet unsuccessful in preventing recurrence of decay, till completely dis-

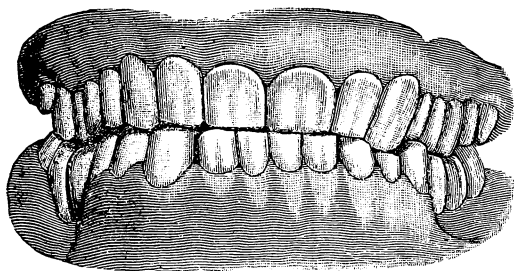


FIG. 6.

couraged he had decided to cap them with gold or platinum; but hearing of this system, he gave it his preference, owing to natural

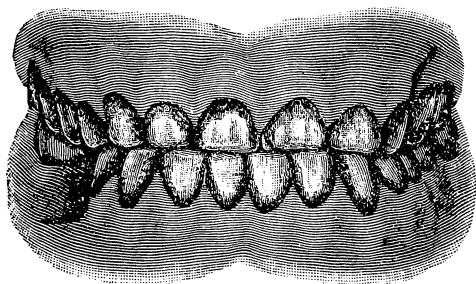


FIG. 7.

appearance. Loss of right inferior molars and bicuspid, also left upper first bicuspid and first molar, had allowed considerable abrasion of cutting edges, necessitating opening bite an eighth of an

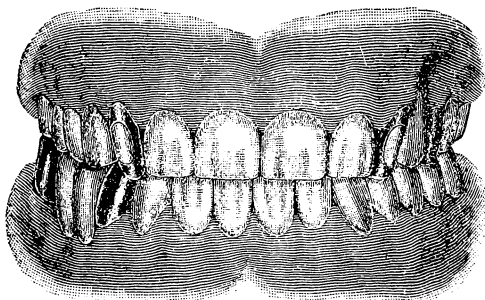


FIG. 8.

inch by means of bridges and gold caps on upper right cuspid and bicuspid, and jacketing remaining teeth as shown in Fig. 8. The

open faced gold caps on cuspids were used to prevent striking of porcelain tips of crowns while chewing, for people accustomed to no interlocking of cusps have great lateral motion and require more than ordinary means of precaution. The patient had a heavy mustache, which covered the gold caps, allowing very little disfigurement in that respect. The pulps were alive and suffered no harm by grinding and trimming of teeth.

Miss B., aged nineteen, showed teeth as in Fig. 9. The upper centrals, cuspids and right lateral were very badly pitted and out

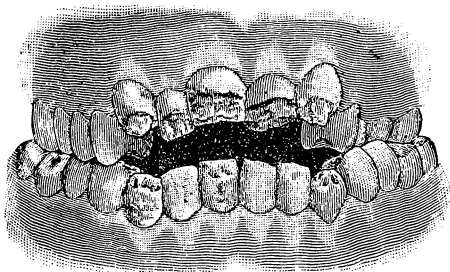


FIG. 9.

of position. The left lateral was lost by extraction some years previous. The upper incisors and alveolar process protruded so much that patient could only close her lips by forcing them. The space from non-occlusion causing decided lisp in speech. We removed the first upper bicuspid, and followed this by slight, but constant pressure on the cuspids and incisors, thus closing the space made by extraction. It also reduced the protrusion and brought the upper and lower nearer a cutting surface. After obtaining these results, a retention appliance was used for sufficient time to

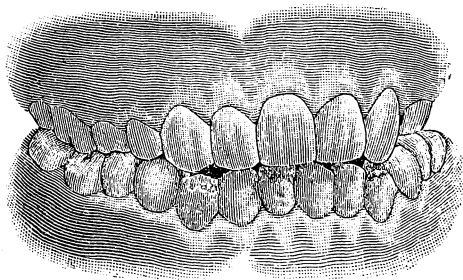


FIG. 10.

insure position; after which the teeth were prepared and covered with porcelain jackets as in Fig. 10. The remarkable feature of

this case is the fact that devitalization was not resorted to, except in right central, which was more prominent than the others, thus requiring more trimming to make the arch uniformly contour. A younger sister of this patient has similar teeth, which we remedied in the same way four years ago. They are in excellent condition and present a very natural appearance, devoid of aggravated line so frequently seen at gum margins of ordinary crowns.

[TO BE CONTINUED.]

THE RELATIVE EFFICIENCY OF DIFFERENT ABRASIVE WHEELS.

Prof. S. J. Willey.

The above is the title of a very interesting article by Mr. Charles M. Jenks, which appeared in a late number of the *Scientific American Supplement*. He states that during the summer and early fall of 1893 he was an active participant in a careful series of experimental tests, instituted for the purpose of determining the relative efficiency from the many corundums obtained from different localities throughout the world.

These tests, at first limited to corundum, finally led to a further series of comparative tests, which embraced most of the abrasive products in commercial use.

In looking about for the proper methods by which he should make his tests, he finally selected a firm on whom he could absolutely rely as to the character and quality of the work. After having determined on a plan of operation, he then proceeded to the Chicago Fair, for the purpose of gaining additional information on wheel tests and abrasive products. He remained there over a month and had interviews with over three hundred workmen, representing as many concerns, and from all parts of the manufacturing world. He found, as a result, that there prevailed the densest ignorance regarding the relative values and efficiency of the different abrasive products in common use, even among those where it would seem self-interest should have prompted investigation.

He found that no value could be attached to any tests when made by one manufacturer of wheels against his competitors for the purpose of advertising, unless the conditions be such as to guarantee against improper partiality. He further says that to obtain the greatest efficiency and economy in wheels they should be made to order; that is, wheels should be made to suit the exact needs of the consumer.

He proceeds to give an exhaustive statement of the trials and tests made by him. They were made with all the various products, such as quartz against garnet, emery and corundum, carborundum against corundum, emery, garnet, etc. The numbers employed in corundum, emery, garnet, etc., were 8, 14, 16, 20, 24, 36, 60, and some others, and in carborundum of the largest size obtainable, No. 60. This, of course, being pitted against a corresponding number in corundum, emery, etc.

His opinion concerning vitrified wheels is very important, and concerns the dentist quite as much as the manufacturer. He says it may be claimed that another process from the one he employed (the vitrified) changes the character of the abrasive to such an extent as to make it a more durable and efficient wheel. This he can safely assert is not so where corundum is employed, as the heat obtained in the vitrifying process in no way affects the corundum, and the cements and fluxes used in either process are not selected with reference to their abrasive properties.

Vitrified wheels, especially selected for rapid cutting, though not made under the conditions herein given of both corundum and emery, were repeatedly tested against wheels of proximately the same degree of hardness made by the cement process, and he could see no reason to believe a vitrified wheel can be made of either corundum or emery, or of any other product, which will do more efficient work than a cement wheel of the same products.

In summing up he says it was not his intention to provoke controversy regarding the individual merits of abrasive wheels, or to advocate any particular wheel, but that he submitted the following table, as showing the number of abrasives in the relative order of their efficiency when made into wheels and subjected to practical use, and it will be found to be proximately correct :

- 1st. Diamonds.
- 2d. North Carolina corundum.
- 3d. North Carolina and Georgia corundum.
- 4th. Chester, Mass., corundum.
- 5th. Turkish emery.
- 6th. Bengal corundum.
- 7th. Naxos emery.
- 8th. Peekskill emery.
- 9th. Garnet (best North Carolina).
- 10th. Carborundum.
- 11th. Preparations of crushed and chemically prepared steel grains.
- 12th. Best flint, quartz crystals and ordinary garnet.
- 13th. Common quartz, flint, buhr stones, sand, etc.

As a result of his tests and information previously acquired, he was not at all convinced that a wheel made of pulverized

diamonds would do the rapid and continuous cutting that a pure corundum wheel would do. Like carborundum it might prove in practical use of poor efficiency and economy.

UNPROFESSIONAL PROSTHETICS.

Dr. G. N. Johnson, Concord, N. H.

It is our purpose to discuss prosthesis as relating to artificial dentures, and especially to rubber plates.

There is no branch of our practice which actually requires more skill and judgment, or more varied and extensive scientific information. It is easier to find ten men who can insert good gold fillings than to find one who is able to construct a good set of teeth, even on rubber, that shall approach to scientific correctness in adaptation, expression, and articulation.

A few scientific and thinking men have, indeed, made wonderful advancement in the science of prosthesis, and their contributions to our literature are as well-springs of water in a desert land. Yet the average of attainment is less, the standard is lower, and prosthetic dentistry has gone backward, not forward, in the past ten years. Never was so much injury inflicted, never so much suffering occasioned, never so many human faces made shocking and unnatural by dental handicraft.

How much we hear of late about "rubber disease" and kindred ills. A prominent dentist, in a recent paper, gives the semiology and syndrome of this "disease" as follows:

"A low order of vitality in the parts covered by the plates and its peculiar pallor; irritation, swelling, redness, inflammation, congested, engorged, hyperemic condition; granulation, granulated masses like a strawberry, red, purple, scarlet, soft and spongy; half the arch filled with a spongy mass; blood oozing from the diseased parts; turgidity of the vessels; roof of the mouth like half decayed raw beef cut across the grain; suppurating, discharging condition, ulceration; pus exuding from the folds; sanguino-purulent fluid constantly exuding from the apertures in the palate over the necrosed bone; sensitiveness so obtunded that no pain is felt, or in other cases, a burning, drawing feverish sensation; lines of inflammation extending to the throat, causing disagreeable tickling sensation, and annoying cough; bronchial affections, chronic catarrh; sloughing of the soft parts; in some cases death."

And must we confess, *miserabile dictu*, that all this is being continually inflicted on the public by those who are recognized as members of our profession?

The symptomology of the dread "disease" is in the main correct as given.

Its terminology or nomenclature, though far from scientific, is sufficient to designate it. But pardon a slight digression, while we consider more carefully its true etiology. Examining the offending plate we may find a whole chapter in etiology. Observe carefully through a good lense the rough, plaster surface, the knife-like edges, the suction-ridges of needless depth, resembling in miniature the ragged tops of the Sierra mountains; see how faithfully every air bubble and careless cut in plaster has been copied in the rubber, like so many gravel stones to irritate and wound the tissues. And what do we see in the center—is it a cesspool walled about to increase its capacity for filth? No, that is an "air chamber" with a suction-ridge around it; and it serves not only to produce a tumor of fanciful design and raw beef edges, but also to increase the thickness of the plate and make enunciation still nearer an impossibility. Worst of all, how carefully the impress of the palatal ruge has been preserved—all the sharp, irregular ridges undercuts and overhanging edges presenting to this especially delicate and sensitive portion of the mouth a jagged and unyielding surface better suited for a nutmeg-grater or beef-steak crusher.

Were it possible to produce in gold an exact *fac-simile* of such a surface, every irritating point sharply defined, and every nidus of filth and disease retained, what effect do you suppose it would have on the mouth? A little absorption of the alveolar ridge, a little recession of the plate, a slight change of bearing consequent on the wearing away of the opposing teeth, and all these ridges and excrescences must again and again carve for themselves new resting places in the mouth of the victim.

To make the misery complete, the dentist need only to so arrange the teeth that all pressure of mastication shall fall on the anterior portion of the jaw, or to so adjust them that they shall articulate on inclined planes, and at every occlusion the plate will rock and partially rotate, crushing and lacerating the mouth till a pronounced case of "rubber disease" is developed.

There are still some dentists of high degree who believe that mercurial poisoning results from the wearing of red rubber. And some of the sad cases they report do seem a trifle ludicrous—the unfortunate lady from Kansas suffering eleven long years from chronic diarrhea, nor could be healed of any, all occasioned by the wearing of a common rubber plate, and the consequent absorption of mercury! A brief calculation of the largest possible daily dose during that eleven years, even supposing the rubber to be soluble

at all, seems to establish the fact that red rubber is a cathartic beside which Ayer's pills fade into insignificance.

We offer the following suggestions for the treatment and prevention of the disease :

1st. Vulcanize the rubber plate between metallic surfaces, and give it the same smooth, continuous, polished surface and rounded margins as to a gold plate.

2d. Adjust the teeth to articulate on surfaces paralld with the line of occlusion, and thus avoid clatter and twist and tilting of the plate. More dentures are failures from faulty articulation than from any other cause.

Whether prosthetic dentistry is professional or otherwise depends not on the kind of material employed, but on the ethics which governs and the science which directs. That portion of our practice is most professional which most truly subserves the interests of our patients. The time is not yet come, nor will it soon, when prosthesis, senselessly termed " mechanical " dentistry, shall be divorced from the profession and relegated to the tradesman or mechanic. And so long as the insertion of artificial teeth remains a necessity to our patients and a recognized feature of dentistry ; so long as it is taught as an essential part of our college curriculum, and we seek by legislative enactment to reserve to ourselves the exclusive right ; so long as we assume to perform the work at all, it remains our professional duty in this, as in any other branch of our practice, to render careful, intelligent, and conscientious service.

GRIP LESIONS IN THE ORAL CAVITY.

For the past year or more I have been greatly interested in a number of cases presenting themselves for treatment, and involving a series of conditions that at first seemed quite obscure. With a majority of the patients the prominent symptoms were an acute inflammation of the gums and mucous membrane of the entire mouth, together with looseness and great irritation of the teeth.

A peculiarity of the lesion was the fact that it always developed suddenly, the patient frequently awakening in the night with severe necrosis of the teeth and jaws, and in a few hours the gums and surrounding tissue presented the characteristic state of acute inflammation, while the pain in the teeth frequently became intermittent, often subsiding in the upper, to appear in the lower teeth, and *vice versa*.

The first two or three cases were treated with mild stimulants, always affording some relief; but I soon found that the affection persisted in running its course, generally culminating in two or three days, and then gradually decreasing in severity till at the expiration of a week from the commencement, the teeth had regained their usual firmness, and the gums and mucous membrane their normal condition.

The absence of local irritants, such as serums calculus, or carious teeth, led me to inquire as to the previous physical condition of the patients; and, to my surprise, I found in every instance that they were convalescing from severe attacks of la grippe.

Then the truth at once flashed upon me that this was only another form of functional disturbance, caused by that octopus of diseases. Since then I have given the subsequent cases all the study consistent with the little time at my disposal.

The conclusions arrived at, are, that while all pronounced attacks of la grippe are not followed by tooth and gum trouble, there are many instances where the sudden development in the oral cavity of the conditions just described are directly traceable to the after-effects of that malady, just as functional disturbances of the heart, liver, kidneys, and other vital organs are known to follow an invasion of the grip microbe. It is also apparent that these conditions seldom obtain in the young and robust patients, but with those who have passed the meridian of life, and more especially where there has been a repetition of the grip attack. In some cases the foregoing conditions have presented themselves, run their course, and entirely subsided, only to be followed by the same development of oral distress on a recurrence of grip trouble.

One case in particular that I was able to study more thoroughly, presented in addition to the oral disorder a complication involving the lining membrane of the antrum of Highmore; the inflammation in this case resolving in suppuration and discharge through the nose for a period covering two weeks, the severe suffering of the patient terminating in about three days. Very slight swelling was noticeable throughout these attacks, though the pericementum in more than one instance was involved.

In concluding these brief outlines of what has seemed to me an unusual phase of interdental disturbance, I must say that most of the treatment pursued was mainly palliative, from the nature of the cases; and my desire in laying it before the profession is to bring out the experiences of some of my colleagues in the same direction, hoping that some of them may have evolved a course of treatment adapted to this class of dental maladies.

C. P. Bates.

STATE SCHOOLS vs. FREE SCHOOLS.

The French Dental "thunderer," whose striking likeness we here reproduce, has caused another sensation by announcing his irrevocable conversion to the ideas of some of his eminent medical colleagues, advocating the control of dental schools by the State.

After reviewing the far-reaching significations of the new dental law recently passed by the French Senate, the great scholar thus sums up his conclusions on this important subject :

The State having by a new law contracted the obligation of an official instruction of the dental art, in conformity with the new title, cannot realize the obligation unless it creates a special school.

This school, created from all parts, and made one and homogeneous under a single direction, formed of an exclusively medical *personel*, placed under the control of the authority and dependence of the faculty of medicine, would be held to deliver a complete theoretical, clinical and technical course of instruction in the dental art; it would have some analogy with our veterinary schools.

The instruction should comprise :

1st. Scientific notions of a baccalaureate of sciences.

2d. General medical notions.

3d. Special professional notions, special anatomy and physiology, pathology and operative medicine, bacteriology and therapeutics, clinics and operations, prothesis, practical exercises.

4th. Age of admission, 18 years.

5th. Length of studies, 3 years.

The creation of a State School is a solution which imposes itself.

Those who have been opposed to the regulation of the dental art by the State are now assailing the French savant, and no doubt both sides are animated by the best of motives. The opposition is led by no less distinguished a professor of the dental art and scientific writer, Dr. Paul Dubois, editor of the *Revue Internationale d'Odontologie*, who is no stranger to the readers of the ITEMS OF INTEREST. He points to the fact that the dental school of Geneva, Switzerland, supported by the canton, is in a precarious condition, having had some twenty odd students in 1891-92, competing to the detriment of reputable dentists. Besides his collaborator, Prof. Chas. Godon maintains that the creation of a school, outside the existing dental school, would be a burden on the State budget.

It is interesting to observe that a similar agitation for a more adequate organization of dental studies is now carried on in Germany by Prof. Jul. Parreidt, of Leipzig. In our country, too, intelligent doctors are more and more in favor of larger State supervision of medical and dental colleges, which is plain indication of the eventual transfer of the whole business to the more stable care by the State.

I refer to one point in the above discussion which often obscures the real issue. Some are, *a priori*, opposed to any intervention of State in matters pertaining to education or general studies. No doubt our friends in France may still remember the "university" founded by Napoleon I., wherein students were instructed to respect their adventurer-Emperor above their God and parents, and learn some other useful things for the State. But while there are certain dangers to guard against when the State undertakes a delicate matter like this, modern republics have all the constitutional guarantees and means of giving in their schools the highest possible instructions, besides being in a better position to support the best paid staff of teachers.

This would be rather an objection against compulsory education by the State, which, in our opinion, too, is a menacing nuisance, and ought to be obliterated from all statute books as soon as possible, as so much dead weight, dangerous in its potentiality. But it is far less reasonable to object to all teaching by the State, which is one of the greatest safeguards of the public, as well as republics themselves.

This distinction emphasized, the ground is clear for a compromise solution of the great problem. Of course, it seems unreasonable that the State shall not avail itself of the existing schools, with all their experiences and knowledge of details, which is a matter of growth and patient study of years, and it is to be hoped that the agitation of that vital question in France will clear the way for a broader and deeper scientific foundation of the future dental schools under the control of the State.

Our brethren on the other side of the Atlantic, and on both sides of the question, will permit us to humbly remind them—as Aristotle did his friends, the Platonists—that theories may be very fine, but in their application we must consider the actual conditions, and be very loath to destroy anything that can be utilized. In the words of their own great master of philosophy, let them "reorganize, conserving the good," or, as the same scientist puts it, let them reconcile "order and progress."

From the readiness with which some dentists condemn a tooth to the spittoon we would suppose its value and practical use was of little consequence, especially if the ignorant patient agreed with them. Oh, the thousands of teeth that are extracted which should be saved, and that are poorly saved by ignorance and carelessness. In our carelessness we do not do as well as we can, and in our ignorance we do not do as well as we should.

ANESTHETICS.

Is the Anesthesia Caused by Nitrous Oxid Merely Venous-coma, Proving that this Gas is not an Anesthetic?

Is the Mixing of Pure Oxygen with Nitrous Oxid for Inhalation Opposed to Physiological Facts?

Robert Marston, Leicester, England.

Anesthetics may be described as gaseous, or volatile respirable narcotics, capable of paralyzing the respiratory nervous centers. This being about the culminating point of the increasing narcotism or general paralysis of the nervous and circulatory systems, consequent on the operation of the toxic power of the agent used. Hence these respirable narcotics are sometimes called toxic asphyxiants. Hydrogen and many other non-oxygenating inert respirable gases, however, are equally capable of producing an anesthetic condition without exercising any inherent toxic power on the nervous system. These are called negative asphyxiants. The words "anesthetics," "respiratory narcotics," and "toxic asphyxiants" convey the same meaning in the practice of surgery, and are supposed to exclude all substances void of narcotic property.

Viewing anesthetics in this light, we recognize that anesthesia is an intermediate stage of toxic asphyxiation. Asphyxia is supposed to result from an abnormal state of the medulla oblongata, caused by either the passage of non-oxygenated blood through its structure, or else by the circulation of blood whose red corpuscles are so paralyzed by some diffused toxic agent as to be incapable of oxygenating the tissues.

That, however, is not a satisfactory explanation, for if it were correct, those appearances which indicate the progressive stages of asphyxiation, whether proceeding from a toxic or a negative asphyxiant, would be distinctly characteristic, because invariably the same, for it is only reasonable to suppose that blood containing no dissociable oxygen would act in the same manner as blood containing oxygen, which cannot be transferred. Dissimilar effects, however, suggest that every toxic agent diffused in the blood exercises a distinguishing action on the nerves, first modifying those neurotic impulses which govern structural, chemical, and mechanical phenomena, and subsequently perfecting paralysis in death.

The degree in which anesthetics produce their effects is proportional to the quantity imbibed, and may, therefore, be regulated in a great measure by the mode of administering the agent.

Anesthetics, however, are not all equally safe, for the more virulent the poison is, the greater is the danger attending its use.

None are entitled to be considered absolutely safe, though it is highly probable that a large proportion of deaths attributed to the capriciousness of anesthetics arise from other causes.

The maximum of danger is unquestionably attainable by attempting to produce anesthesia in the shortest possible time. The more slowly the process is conducted, within reasonable limits, the more distinctly observable are the progressive indications of each agent's physiological action, and the less liability there is to dangerous muscular reaction, consequent on nerve irritation, which may result from a safe dose if very acrid or pungent, because not sufficiently diluted.

It becomes apparent in practice that the so-called anesthetics are divisible under two heads, *viz.*: Those which act in the presence of a superabundance of oxygen, and those whose action, if any, is counteracted by that element; chloroform belongs to the first class, while nitrous oxid should be placed in the second. These are only quoted as representative compounds, whose respective action illustrates the difference between the toxic asphyxiants, whose narcotic power primarily affects the nervous system in the presence of separable oxygen, and the negative asphyxiants whose indirect anesthetic power is consequent on carbonic plethora caused by oxygen starvation.

It is a question whether the narcotism following carbonic acid inhalation is caused by a specific power of this gas, or whether that condition results merely from the absence of oxygen, and though it may be demonstrable that carbonic acid does not asphyxiate when a superabundance of oxygen is present, there cannot be much doubt about the direct action of asphyxiates on the nerves. Nature's vigilance at the entrance of the trachea, evinced by the spasmodic closure of the glottis when an attempt is made to inhale this gas, should be regarded as very suggestive.

Carbonic acid is the product of the combustion of structural debris. When thrown back on the capillaries it impedes or arrests the vital chemical changes, and narcotizes the nerves; it is also capable of exciting immediate reflex muscular action, as is shown by the laryngeal spasm above referred to. This dangerous poison is used as an anesthetic when chloroform or ether is respired from an inhaler whose capacity accommodates a confined atmosphere sufficient for an operation, the merits of that operation, so far as relates to anesthesia, may properly be divided between the agent used and carbonic acid gas.

In general surgery, chloroform, ether, bichlorid of methylene,

etc., are separately or conjointly used for producing anesthesia, but for dental operations nitrous oxid, N_2O is generally preferred.

Its freedom from unpleasant taste and odor, its quicker action and transient effects, distinguish it, pre-eminent suitability for oral operations.

This gas is usually prepared from nitrate of ammonia NH_4NO_3 , which, when carefully heated at about 392° Fahr., splits up into water and nitrous oxid, thus: $NH_4NO_3 = N_2O + 2H_2O$, but carelessness in either selecting the nitrate or conducting the process of decomposition may occasion contaminations of the gas with noxious products, whose irritating local action may cause suffocation by spasmodic closure of the epiglottis. It is quite possible that such an accident might be set down as the result of some constitutional predisposition peculiar to the patient, because dentists place so much confidence in the skill and care of their gas makers that they seldom, if ever, test the purity of the gas they use.

It is a prevailing opinion that nitrous oxid acts like all other anesthetics, and produces insensibility by medicating or narcotizing the nerve centers, but my experience in the use of these agents has changed my views regarding that hypothesis, so far as it relates to nitrous oxid. My first supposition and later experiments were based on indications which are so well known to every observing operator that it is really surprising an abler pen than mine has not assailed the general theory long ago.

A few facts should be noticed :

1. The futility of attempting to produce profound anesthesia so long as atmospheric air is admitted with the gas to the lungs.

2. The deepening discoloration of patients noticeable during the inhalation of nitrous oxid.

3. The immediate antidotal and decolorizing action of air after gas anesthesia.

4. Experiments with mixtures of pure oxygen and nitrous oxid give unsatisfactory results.

By reviewing these facts we may discover that the first demonstrates that oxygen is physiologically incompatible with nitrous oxid considered as an anesthetic, as arterialization of the blood and narcotization of the nerves do not proceed simultaneously when these two incompatibles are used together. The second indicates the transition of oxihemoglobin, the pigment of arterial blood, to reduced hemoglobin, the pigmental cause of venous blood. In other words, it illustrates the gradual diminution of available oxygen in the pulmonary and systemic capillaries. The third shows with what avidity the atmospheric oxygen is absorbed by the reduced corpuscles.

Regarding the fourth, I may say that the plan of mixing pure oxygen with nitrous oxid presupposes either that the admixed oxygen enters into chemical relation with the constituents of nitrous oxid to form a definite chemical compound, whose anesthetic character is more appreciable than that of nitrous oxid, or that the admixed oxygen does not enter into chemical combination, but that its disseminated molecules are intended to continue the vito-chemical changes even during the assumed process of narcotization performed by its fellow component, nitrous oxid. This plan being analagous to the mixing of chloroform vapor with air, inasmuch as both methods aim at arterializing the blood while the neurotic poison accumulates within and asserts its influence over the human economy.

Any person possessing a slight knowledge of chemistry knows that any play of affinity between oxygen and nitrous oxid within the lungs would cause death. One equivalent of nitrous oxid, plus one atom of oxygen, equals two atoms of nitric oxid; two atoms of nitric oxid, plus one of oxygen, forms one atom of anhydrous nitrous acid; one atom of anhydrous nitrous acid, plus one of oxygen, represents two atoms of hyponitric oxid; two atoms of hyponitric oxid, plus one of oxygen, formulates one atom of anhydrous nitric acid. Therefore, how can they, who advocate the mixing of pure oxygen with nitrous oxid, defend their practice? What data formed the foundation of such an opinion?

[CONCLUDED IN APRIL "ITEMS."]

DENTAL EDUCATION AND DENTAL LEGISLATION.

The following interesting discussion was had in the last Southern Convention:

Dr. C. N. Peirce said that he did not feel that he was entitled to the honor of opening the discussion of a subject of so much importance. He felt that while incompetent to deal with the papers presented, he must dissent from much in each of the last two papers.

The first paper was pleasing, from the manner in which it handled the subject of preliminary education—the foundation on which is to be raised the structure of all further education. When we open up the question of dental legislation in the different States, whether undergraduates shall be admitted to practice, etc., we strike a different phase of the subject—the first query is, What is the meaning of dental legislation? What is its purpose? Why do we have these State laws, and what is the outcome of all this? Is it for the benefit of the profession, or of the individual? There

must have been some reason for the inception of this legislation. It cannot be entirely without foundation. In this country there are about forty dental colleges, and charters granted or asked for nearly as many more. What does the public, what does the profession see in all this? It is certainly a condition of affairs to be deprecated. These institutions are not endowed, but rely for their support on the number of students they can attract within their walls. The only compensation the teachers in these institutions receive is the fees from the students, say there are five professors, and, perhaps, ten demonstrators to each college, what is the inference? Do they say to the student, "Come to us and you will get a diploma as soon as possible?" The inducement should be an education and a degree, but all the schools cannot get enough students with these inducements only, and some said we will give you the diploma without the education, and that laid the foundation for our dental laws, and of the National Association of Dental Faculties. I say this as the result of forty years' experience in teaching students from all parts of the country. If every man desiring to enter the profession of dentistry could go before an Examining Board so constituted as to be entirely impartial—above suspicion—without possibility of partiality—have his papers examined and placed on record, such an examination, and such a record would stand for something, but that is in the future, it must come, perhaps within five years we will see it. Our present dental laws are in the line of progress—gradually we are working up to ideal conditions. The schools should be the creators of students, not grantors of degrees. In the German schools, if a man wants to teach he gives his lectures, and if they are acceptable he gets his class, but degrees are granted by another institution. Many men are born teachers. In Germany the idea is that he who is qualified to teach teaches, and students who choose to do so attend his lectures. If he desires to study dentistry he listens to the lectures of the one best qualified to give him instruction. In a class of two or three hundred students it is impossible that all should be equally studious, but some may be very sharp—some may get through and know but little. This cannot be avoided. It is the inevitable result of the conditions. Some students get the degree without being qualified for it, but the only wonder is that it is not so more frequently. The disposition now is not only to raise the standard of preliminary education, but also to extend the period of study so that graduates will be so thoroughly proficient they will not have any fear of going before any Examining Board. We will have such legislation on the subject that there will be no unfairness to students.

Dr. B. H. Catching: I love to listen to the broad-minded views of a man like Dr. Peirce. He takes the right view, and we are bound to recognize it as such. To answer the papers that have been read would require a book to be written. Their length was their most prominent feature. If you do away with the State Examining Boards you would do away with half the patronage of the colleges. The schools and the boards go hand-in-hand.

The idea that the board is a small ring formed to protect itself and not allow any one else in is too contemptible to be repelled. A first-class dentist college graduate need have no hesitancy in going before a State Board. They need have no fear if they are competent. As a rule, Examining Board questions are along practical lines—fair and easy. Because there have been a few foolish questions, that should not condemn the whole system. I repeat, to blot out the Examining Boards would deprive the colleges of half their patronage.

Dr. R. R. Freeman: There are conditions we must meet. As to preliminary education, it seems a hardship to turn back a young man because he has not had a required amount of education. In my day the demands were not so rigid, but I have always done the best I could. Yet I have always suffered from the lack of that early preliminary education. Give the young men all the education you can; force him to think; it will make him useful and beneficial to humanity, and he will thank you for it. We call ourselves a liberal profession, but we have not attained the position of the liberal profession of law; they are able to make themselves felt. If we would obtain like recognition, we must enact laws that shall be for the best interests of the whole people. A man who is guilty of malpractice in law is subject to disbarment; he is turned out. We should have the same feature in our laws. It has been said here that if we disband the Examining Boards the colleges would lose their patronage. We should be above such selfish aims and look only to the best interests of all concerned. If the colleges can't get students, then the students don't need the colleges. If there were fewer students the professors would have better opportunities to know what the student is worth and what he is. A young lawyer goes before the bar and shows what he knows. He is not examined, but he gives evidence what he is before the proper tribunal. If he is not what he claims to be, he is disbarred. Why not so in the dental profession?

There is a spirit of unrest, an unsatisfied condition, that is working toward the advancement of humanity. We must have clean hands and a pure heart. Men must learn that to do right and attain skill is the only way to attain prosperity.

Dr. McKellops: I have not language to express what I feel on this subject of dental education. I sprang from nothing; I educated myself; I am proud of my profession, but not of our colleges nor our laws. The States refuse to recognize the college degrees; one State refuses to recognize the license granted in another State. England is not to be blamed for doing the same thing. Give us a law to govern the colleges and make the professors teach the students. We want a law to govern the schools. There are forty schools. If a man can't pass in one, he finds another where he can pass. If he can't pass the board of one State, he goes to another where he can pass. It is not a good law; it is not that way in the legal profession. A license that is good in one State should be good in every State, and that is what we must have. I go the world over and I watch things carefully. It hurts me to see men jump on England. It is not half as bad as the action of one State toward another. In England dentistry and medicine stand hand in hand. The dentist's standing there is higher than anywhere in the world. We want to elevate our standing. It will give us a spirit of manhood to stand abreast of the legal and the medical professions; and we need no better standard than they have, which is merit not measured by time of study.

Dr. B. B. Smith (Florida): I am a new member of this Association, but I feel it my duty to say what I can to advance the interests of our profession. The real cause of the recent action of England toward American dentists has been over-looked. (Dr. McKellops: It is because American dentists go there, and lecture and advertise, and lower us in the eyes of the world. They give public clinics, and invite everybody to come in, and charge for them. These public clinics are a stigma on American dentistry.) The condition of things is deplorable. I am in a position to know. The dentists from the United States who go to England are not of our best, they are not members of our societies. While the best dental education in the world can be had in the United States, England is jealous of that fact. But the American dentist in Europe is not the representative American dentist as known in the United States. (Dr. McKellops: Some of them are representative men. I know them.) The State Examining Boards are impartial; they have nothing at stake; they stand between the quack and the public, and the public is entitled to that. The public is not capable of knowing who is competent, and who is not. A college diploma is not always the reward of merit. Many get through who are incompetent; they work through on the work of others. As I see it, Examining Boards do not go far

enough in examining candidates who come from the colleges. If they are not competent, they should be thrown. Every one should be forced to prove his efficiency to practice, not merely his knowledge of theory. The ability to practice is what the public needs—not the gift of gab. I, for one, am in favor of Examining Boards; and let them give every candidate a fair examination. When State Associations and State Examining Boards meet in joint session there is abundance of clinical material, and each one should prove his qualifications for the practice of dentistry, not only in written papers on theory, but by practical demonstration of his ability to perform the operations required in daily practice.

Dr. C. N. Peirce: I have reason to believe I was misunderstood when I spoke on the subject of Examining Boards. I believe we are in a transition stage. The boards are one of the steps in the evolutionary process, though they have not proved themselves equal to the task. They must be empowered to give a degree which shall be recognized in every State in the Union. This point must be reached before they shall have accomplished all that is to be desired.

Dr. J. Y. Crawford: We have with us a gentleman of prominence, whose national reputation entitles his views to consideration. Allow me to resign the floor in favor of Dr. W. C. Barrett, of Buffalo, N. Y.

Dr. H. J. McKellops: We would all be glad to have Dr. Barrett expound the position of the State of New York on these questions. By many it is not clearly understood; and we would like to be able to judge of what would come of it, if every State in the Union should take the same attitude.

Dr. W. C. Barrett: I suppose it is generally agreed that, in principle, an Examining Board in each State is desirable. The character of the board in each State, and in all the States, should be such as to commend it to the confidence of all who are above suspicion for honesty and capacity. By the laws of the State of New York, the University of New York has entire control of all educational institutions above the grade of the common school—the higher academies, universities, and professional schools. What is the University of New York? It is not a teaching institution; it is a federation of all the teaching institutions represented in one body. Its fundamental powers are relegated to the Board of Regents of the University, elected by the State Legislature, the same as United States Senators are elected—by the votes of the State Senators and Legislators in joint session. There are nineteen in all, who are elected for life and who serve without compensation. It is a body which is beyond all political influence. They are

selected from among the men of the highest character; men who are devoted to the interests of higher education. It has a supervisory power over the higher education in the State. It grants all charters and revokes charters; it grants the degrees for the educational institutions in the State. It is a federated body of the five hundred educational institutions. It is a supervisory, not an educating body.

By raising the standard of higher education, we believe it is a long step in advance. This body has a system of Regents' examinations. Examinations in all the different branches of the various schools are held by different committees appointed under the direction of the Board of Regents. This is so thoroughly systematized that there is no possibility of, nor has there ever been charged, any suspicion of collusion or of evading the requirements of the Board of Regents. An examination passed in any of the different branches, whether Greek or Latin, French or German, geometry or trigonometry, receives a given number of marks. The examination is rigid, and there is no fluctuation of the standard. The number of marks required on each branch must be attained to receive the Regents' certificate. Now, in regard to the professional schools: A standard of preliminary education is thus established which must be attained before matriculation is possible in any professional school, whether of law, divinity, or medicine. To matriculate in the Medical College of New York a student must have the Regents' certificate of a certain degree of proficiency. The Dean has absolutely no discretion. Without the Regents' certificate he cannot matriculate; with the certificate he must accept him; and when the student has graduated from a professional school he does not receive either diploma or license from that school—he must go before the Regents and be examined, by a board appointed by the Regents, before he receives his diploma or license to practice. He matriculates and goes through the curriculum of the professional school, and then he is examined by the Regents of the University for his diploma, degree, or license to practice.

Within the past year the dental schools have been incorporated on precisely the same lines as the medical schools. A dental student, before he can matriculate in a dental school, must have the medical student's certificate of the same preparation, through the same curriculum—anatomy, physiology, chemistry, etc. The examination is exactly the same in these preliminary branches.

The Board of Regents grant all charters, and can revoke any charter. No charter is granted to a medical school that has not the sum of \$500,000 actually raised and deposited, as an endowment fund, before a charter is granted empowering to grant degrees.

That is the unalterable, inflexible rule. On the first day of August, 1894, these regulations went into effect for schools of dentistry. After that date no Dean of a dental college can matriculate a single student without the Regents' certificate. He has no power without the properly authorized credentials, showing the requisite preliminary qualifications. The Regents have provided for examinations for those outside of the State who signify a desire to come under these regulations, and information is given as to how the Regents' certificate can be obtained. A student from outside may matriculate, but within a given time he must present the Regents' certificate, or his matriculation is void. Thus it will be seen that all discretion of preliminary qualifications is taken entirely out of the hands of the colleges. The rule is unbiased but inflexible, whether the student is for the school of medicine, dentistry, law or divinity. Thus it will be seen that a professional school in the State of New York must walk pretty straight, as their charter is liable to be revoked for any irregularity.

For awhile the dental schools of New York will be placed at a disadvantage, compared to those of other States, in the number of students admitted, but gradual preparation for the change has been provided for, and in the end it will prove of great advantage in the advanced standing attained, and will undoubtedly work for good. The schools have unanimously accepted and welcomed it, for they recognize that the recompense will come in the end in the advanced status they will have acquired.

A graduate of any New York school hereafter cannot practice in the State of New York till he has passed the Regents' examination, by a board appointed by the Regents; and this board is very different from the Examining Boards appointed by the Governor, for it can have no political significance. It has never been whispered that any Board of Regents has in any way been influenced by politics. They are entirely above suspicion. The standard is unbending, unvarying, unbiased, permanent in its results. This action of the dental schools will redound to the credit of dentistry; it will make us a profession, not a specialty of medicine, but a profession in precisely the same status as medicine, law, divinity, and all other learned professions, on the same basis as medicine and with the same preliminary qualifications for matriculation and graduation, a standard that cannot be lowered. It is taken entirely out of the power of the schools; they can educate, but they cannot license to practice; they cannot even accept a student independent of the university, in which the whole world has entire confidence. The dental schools are now one of the

federated bodies of the University of New York, which, as was said, is not an educating but a supervisory body.

Dr. John S. Marshall: When I lived in New York, the Regents' examination for a teacher's certificate of the first grade was not above the equivalent of the second grade in a High School. I would ask if it is now of a higher standard?

Dr. Barrett: The Regents' certificates are given in all grades except below the academic. The certificate is according to the standard attained, whether first grade, academic, or, if higher, the collegiate, etc. There are examinations in Latin, Hebrew, French, or a student may take a special course examination. But whatever the grade, the standard is high and rigid.

Dr. Frank Abbott: Some of the statements made by Dr. Barrett need modification. The University of Buffalo has only affiliated within the past three months. I have been connected with the university for more than twenty years, consequently I know more about it than other men connected only with dental schools. The Board of Regents has representatives from all the schools under its jurisdiction. Representatives from the higher academies and from professional schools are invited to read papers, assist in discussions, etc., tending to the elevation of the standard of education, and in the line of advancement. The Regents' certificate is required for admission to all professional schools. A medical student must have a Regents' certificate for matriculation in a medical school. (Dr. Abbott here explained in detail the system of marking in the different grades, from academic up; also the financial system, or monetary reports, made by the schools to the Board of Regents; the system of conferring degrees and license to practice; and some contemplated changes in the law.)

Dr. Barrett: When the Board of Regents determine upon any changes in these matters they have to go before the Legislature, but the Legislature always passes the law as requested by the Regents.

Dr. T. B. Welch: When I graduated from a medical college, forty-three years ago, there was in the class a gentleman who had been only four months in the medical college, a graduate of a civil course college and well read in medicine, though having been in a medical office only six months. He frankly stated these facts to the Examining Board of the Board of Regents. They took us in hand and said: "Now, boys, we have no written questions; we are not going to put the screws on, but we will have a general conversation. We do not ask you where you got your information, or how long you were in acquiring it. We shall soon find out if you are competent. If you stand our examination, we will give you a

certificate. If not, whether you have studied one year or ten years, you will not get it."

Dr. McKellops: I have listened carefully to Dr. Barrett and to Dr. Abbott, and have learned what they do with dental students in New York, and how they are licensed to practice in New York, but with all that wonderful system, if one of those same graduates goes to Illinois, or to any other State, he has got to be examined again before he is permitted to practice. And England only does what is demanded in every State in this country. Then why should we hurl stones at England, and why should such articles be written and such papers read when England is only doing just what every State here at home is doing? No people are trying harder than England to elevate the standard of dentistry; they have none of that mean little feeling that exists here. In our own country we are raising stumbling blocks; every State is arrayed against every other State, and every college against every other college. There should be a general law to regulate these things. What is the meaning of all these colleges? It is simply to get every one as a professor, and take away all the poor patients from the poorer dentists, and make all the money themselves. Committees should be appointed to visit the colleges and look into their manner of doing business. I have got good eyes, and I see into some of these things.

Dr. T. B. Welch: I am an Englishman, and I love England. Until very recently Dublin passed American applications for degrees by only examinations, but England's Medical Council Board objected so strenuously that now it does not do it. You cannot practice in England unless you get a degree from their Medical Council, and there is not a dentist in that Council Board. You must go to the hospital and pass two years there, just as though you knew absolutely nothing about dentistry. If I am not correct, I would like to know it, but I think I am correct.

Dr. McKellops: You tell me that an American cannot go to England and pass an examination there. You are radically wrong.

Dr. Welch: I think I am right in the statement I made. We are above them in our standard. Their first year in the hospital is only on theory. The next year you practically begin dentistry.

Dr. W. H. Morgan: I do not understand how the Regents' examinations are conducted. It would be something immense for those nineteen men to examine all the students from all the schools. How is it done?

Dr. W. C. Barrett: I will try to be concise in replying to Dr. Morgan's questions. The examinations are not conducted

personally by the Regents, but by the Regents' Examining Board. For the examination of medical students each school of medicine has its representatives on the Examining Board—three regular practitioners, three homeopaths, and three eclectics—but these representatives are not teachers in the schools. They report the results of their examinations to the Regents, who grant the licenses.

I think Dr. Welch is mistaken, and that he does not understand the English law in this matter. We acknowledge no English degrees, and we cannot expect them to accept American degrees.

Dr. W. H. Morgan: As far as I can understand it, I think the New York University system is open to harsh criticism. Do you say there is no politics in it? No possibility of fraud? That everything is perfectly clean and honest? I have been taught from my infancy that a corrupt fountain must yield a corrupt stream, and if there is any cesspool more corrupt than your Albany politicians, as shown up in your own newspapers, I don't know where it is. How can a pure stream flow from such a fountain-head? The Regents are elected; it is considered an honorable place to occupy, and there is bound to be all the wire-pulling and chicanery that attaches to such offices. There are men who make it a profession to corrupt legislators, and barrels of money are spent in such business.

Dr. Barrett: It was stated that these men serve for life without compensation.

Dr. Morgan: Yes; and there are men who will pay more for honors than for the dollars there may be in it. Is a Board of Regents elected by such a Legislature competent to select a committee to examine students of theology? I will lay down one axiom in regard to examinations: the further you get the student from his teachers the less reliability is there to be placed on the result of the examinations. How are those Regents made competent to select subcommittees to examine students in theology, or medicine, or dentistry? What guarantee is there that they know anything about the qualifications for the practice of medicine or dentistry? We don't need to talk about England. We have a little job of our own on our hands, and it is enough to have to air our own dirty linen without going abroad for more. Let them do as they please and we can do as we please. We do not ask any favors from England. That is all I care to say about it.

Dr. Barrett: It is useless to argue against any man's prejudices. Is Dr. Morgan familiar with the work of the University of New York? It has been in successful operation for a great many years, and there has never been a whisper of suspicion against its purity until to-day, and that from a man who is evidently totally ignorant of its workings.

Dr. Morgan: Is it not a fact that it is a part of the State government; that the Legislature elects the Regents, and that they delegate certain important powers to others? The Regents are elected by a Legislature whose character is notorious. I am just wondering how many of the scallawag doctors that infect the South got in by that door? I know that some of our very commonest boys have gone to New York and soon came back with diplomas.

Dr. J. Y. Crawford: I had hoped that the distinguished gentleman from the great State of New York would have thrown some light on the great questions before us, but I fear we are only the more hopelessly mystified, and the solution of the question of dental education in this country is not yet reached. If this university system of New York, with its Board of Regents, etc., has been so remarkably effective for these many years, it is strange that it has not been made known to us before. There are, I am certain, many here who never heard of it before to-night. We have listened to some admirable papers; that of Dr. Noble is unique, but it offers a solution of only one point. To solve the difficulty we must meet all that is involved. There is one weak point in Dr. Noble's paper. In regard to his suggestion of having the college faculties represented on the State Examining Boards, I will say that the presence of a college professor on an Examining Board vitiates it and deprives it of its functions. I have been on our own State Board of Examiners, but when elected to a place on the College Faculty I vacated the former position. I cannot serve in that dual capacity. I am disqualified by the action of the Supreme Court. No man can serve on the Board and on a College Faculty. What is the rational, just, philosophical and true solution of this question? We have in each State a legally qualified board to pass on the reputability of the dental institutions of this country. When a State Board has passed upon it, and has decided that it has fulfilled every requirement, then the diploma of that institution should guarantee to its holder the right to practice anywhere in this country. That is only right, and it meets with a responsive echo in every heart. If the question can not be solved in that way, it will never be solved. There are other questions of great interest involving modifications of the laws, and the mode of enforcement. But we are more interested in getting some additional statutes on to the books than in overhauling those we have. Some of the States have recently enacted the law that when a man is guilty of unprofessional conduct he can be deprived of the opportunity of continuing such nefarious conduct. If, as a people, we are capable of self-government we can get on the statute books all that it is right to have there. Let

us unite in solid phalanx on this question. I have all confidence in the integrity and the patriotism of our law makers, and I believe we are capable of self-government. If it is right to disbar a lawyer if he falsifies his word, or defaces the record, then it is right also to revoke the privilege of practicing dentistry if a man is proved guilty of unprofessional conduct. We should have a law to stop it. As an humble representative of the dental profession of Tennessee I say that if every dentist would unite in a request to the Legislature to put such a law on the statute books it would be done, and that is the only way to put a stop to charlatanism. No man should be admitted to the dental profession unless he is fully qualified to practice dentistry, and when he has complied with all the requirements of the profession that should put him in *statu quo* in every State in the Union. If he is able to pass in that State which first put a dental law on its statute books, he is good enough to practice in the State of New York with all its Board of Regents of the University of the State of New York. Right will prevail.

Dr. W. H. Morgan: Kentucky has a law disbaring a medical man if convicted of malpractice and open violation of the laws governing the practice of medicine. It is in the hands of the board to do that thing.

Dr. L. Ottofy: The States of this government are sovereign States, and it is impossible for Congress to remedy the present state of things. The remedy is only to be found in the Legislature of each State. As the poor laws we now have have been copied, one from another, with some modifications, so better laws will probably be copied in the same way, but each State must independently improve its own laws. The remedy does not lie with Congress.

Dr. Edwards: It is a simple matter for each one to learn what the educational system of the State of New York is. The Board of Regents publishes annual reports, but it is useless to discuss the system when so few know anything about it. I will say, however, that the men composing the Board of Regents are all men of the highest reputation and authority on educational matters. If there have been errors in regard to medical students it is, perhaps, because they have not had the medical schools long enough in charge. The system is not yet perfect. In dentistry, since the establishment of the first dental school in Baltimore, step by step, advances have been made, and this alliance with the Board of Regents of the University of New York is a very important step in advance. I can get the degree of A.B. from what is considered a reputable school without going there, except to receive the degree.

In New York the same degree requires attendance upon lectures for eight years. Between those two extremes we find all degrees. If the board examinations were the same in all the States as in New York we would have a revolution in many college faculties. I hope we will some day secure such a board of control in Illinois!

Dr. Sweeney being called on to close the discussion of his paper, said the shortest way to get through with it would be to reply in rotation to those who had criticized it. Dr. Sweeney then endeavored to clear himself of Dr. Peirce's accusation of having failed to understand the *Cosmos* editorials; apologized to Dr. Catching for the length of his paper in view of the lateness of the hour and the temperature of the hall; denied any intention of "throwing bricks," etc. In regard to the muddle with England he thinks we need a system of international ethics. He believes Dr. Welch correct in the idea that any one holding an American degree, or half a dozen of them, would have to go over the whole ground in England before being allowed to register, and as long as he is not registered he is not allowed to practice.

PLANTING TEETH.

Dr. Morrison says that in reviewing his practice for the past eighteen years he has not had one unfavorable or dangerous symptom. Many of those reported at the "Centennial" have "gone over to join the great majority," but some are still doing well.

One remarkable case where the planted tooth is still doing good service was placed on record in the "American Transactions," in 1875. As then reported it was an apparently desperate case in the beginning. The patient was a lady, then forty years of age, of delicate constitution and anemic habit. The condition of the gums was bad and receded from this tooth. There was a large cavity in the distal surface which had exposed the pulp, having an oxichlorid filling, with decay below the filling. The pulp in the posterior root was dead, but alive in the body of the tooth and the interior root. The patient was anxious to save the tooth, but not able to stand the operation. The tooth was removed, deposits of tartar cleaned off, the root canals and crown cavity filled out of the mouth, and the tooth returned to place. For three or four days the patient experienced considerable pain, but in a few weeks it became comfortable, and in five months was the firmest tooth in the arch, which was unbroken. Such was the record made in 1875, and in 1894 that planted tooth was still doing good service.

Dr. Morrison does not think that this operation has ever been

thoroughly investigated from the physiological and pathological standpoint. There seems to be an aversion to bringing it up for discussion. When asked why odontoclasts attack promptly the roots of some planted teeth, while others have remained intact for twelve and fifteen years, no rational or intelligent answer is given. An unhealthy, neglected mouth, with the soft tissues in a tumefied condition, encourages this retrograde metamorphosis.

Physical culture results in the prevention of all classes of microscopic organisms that work destruction in the mouth. Dr. Morrison recommends massage treatment with the ball of the finger and the bristles of the tooth-brush over the plate of the alveolar process, exerting a friendly friction, several times daily, with frequent rinsings with warm water. A patient who follows this method systematically will rarely lose a planted tooth.

GOLD FILLINGS.—People, says a dentist, wonder why gold is used for stopping, and are apt to credit the dentist with employing it for his own ends, on the ground that he can charge more and get correspondingly larger profits than would be the case if he used any baser and less expensive metal; but, he says, in explanation, a little reflection would convince the suspicious ones that there is no ground whatever for such ideas, and that the real reason for using gold is that it will weld while cold, and will successfully resist the action of the acids and fluids of the mouth, hence it is unequaled as a preservative for the teeth.

NO OTHER ANIMAL HAS SO MANY TEETH.—The great armadillo has the greatest number of teeth. Whereas the normal number of teeth is 32, this animal has from 90 to 100, 24 to 25 in each side of the upper jaw, and 21 to 24 in each side of the lower jaw—all molars. They increase in size from front to back, have no roots, but an individual hollow base, showing constant growth, and are destitute of enamel.

FREE TEETH FOR SOLDIERS.—After careful consideration of the question, the Emperor of Germany and the Berlin War Office have now decided that artificial teeth are to be provided free of charge to the soldiers, on the ground that the troops are better able to render good service with sound grinders than with teeth which either ache or are inadequate to the performance of their work of mastication.

CURRENT THOUGHTS.

TROPACOCAIN.

Drs. Hugenschmidt and Viau, of Paris, have been conducting two independent lines of experiments with tropacocain, and their conclusions are very favorable to the new local anesthetic. Both report the results obtained through the medium of that vigorous and able French dental magazine, *Revue Internationale d'Odontologie*. Besides, Dr. Viau was kind enough to send us his original pamphlet on the subject.

Tropacocain was obtained from the leaves of coca, from Java, by a German chemist, Giesel. It is an alkaloid extract also known as hydrochlorat of benzoyl-pseudo-tropein, and its physiological virtues as an anesthetic were first described by Dr. Chadbourne, of Boston.

The experiments on animals and patients have demonstrated that tropacocain is half as toxic as cocain, while its action as a local anesthetic is more complete than that of cocain.

The sub-mucous buccal injections of two centigrams of tropacocain in ten drops of water, used by Hugenschmidt in the case of thirty-seven nervous persons, and others, produced only a slight increase in the number of pulsations (from 80 to 84), and no change in the arterial pressure, as evidenced by touch. However, these injections must be made slowly, lasting one minute for each person, or otherwise unpleasant and even dangerous symptoms develop, especially when the dose is increased to four centigrams, and the injections made too rapidly.

Its action on the respiratory and nervous systems, and especially on the heart, was more favorable than with cocain, as at the end of ten minutes no trace of cardiac perturbations was to be observed.

The conclusions arrived at by Dr. Viau are formulated as follows:

- 1st. Tropacocain possesses properties of local anesthetics.
- 2d. The dose varies with the extent and durability of the anesthesia.
- 3d. For the dentist, the dose of three centigrams suffices in ordinary cases; it may be increased to four.
- 4th. The doses of four to six centigrams may be considered fatal to the animal experimented on.
- 5th. Tropacocain produces a local anesthesia similar to that of cocain.
- 6th. Its toxic influence is less than that of cocain.
- 7th. The intensity of its action varies with the concentration of the solution employed.

Dr. Viau failed to observe any ulcerations, necroses, or analogous incidents resulting from the injections of tropacocain.

M. P., aged 15, dental student, of weak constitution, very anemic, suffered for a long time from a chronic periodontitis of the roots of the first superior molar. He was afraid of extraction, and hesitated to submit to an operation. The moral state was unfavorable to the production of anesthesia.

We made an intragingival injection of 2 c. of hydrochlorat of tropacocain, dissolved in 1 gr. of distilled water. The extraction took place almost immediately after the injection. The anesthesia was very satisfactory; a feeble perception of pain was evinced toward the extraction of the last root. No bad after-effects were observed; instead of the palor of the face frequent after cocain injections, there was a rose color.

FIFTH OBSERVATION.

Mrs. J., aged 40, very nervous, fair health, afraid of the least operative manœuvre. Wears a prosthetic apparel of eight teeth. A soft gingival tumor, violet in color, bleeding, of a considerable size, occupied the whole alveolar region, from the right superior lateral incisor to the first large molar, covering a considerable portion of the palatine arch. The extirpation of the tumor having been decided on, we invited Dr. Isch-Wall to perform the operation.

We made an injection of 4 centigrams of hydrochlorat of tropacocain, dissolved in 1 gr. of distilled water. The operation, which comprised the excision of the tumor, cleansing of the alveolus and the deep cauterization of the points of implantation of the tumor, lasted nearly a quarter of an hour.

The patient experienced no pain; toward the end of the operation, however, when the thermometer was introduced, a slightly painful sensibility was occasioned. But we have not observed any abnormal phenomenon. The patient went home a quarter of an hour after the operation. We saw her again the next morning, and failed to learn of any unfavorable incident or after-effect on that day or after.

TENTH OBSERVATION.

Mr. T., 22 years; vigorous subject. This man presents for extraction, on the right superior side, three roots of the first large molar and the first small one; on the left side, the first superior small molar.

For the anesthesia of the first large molar, we make on the level of this tooth an intragingival injection of 2 centigrams of hydrochlorat of tropacocain; the roots were extracted without the patient experiencing the least pain.

A few minutes later another injection is made of 2 centigrams of tropacocain on the level of the first little molar; this time the anesthesia was complete. No after-effects.

EIGHTEENTH OBSERVATION.

Miss P., 16 years, nervous, capricious, having an extreme fear for extraction. The crown of the first large left inferior molar was completely destroyed by caries. We made an injection of 4 c. of hydrochlorat of tropacocain dissolved in 1 gr. of distilled water; the insensibility being confirmed, but on account of the patient's resistance in opposition, the extraction could only be executed twenty minutes after the injection. Notwithstanding, the operation did not occasion any pain, we have equally failed to observe any subsequent ill effect.

This case is doubly interesting, because of the duration of the anesthesia and the inoculation of the substance in the dose mentioned, in spite of its complete absorption and the unfavorable moral state of the patient. Emotional phenomena are indeed, in our opinion, efficient conditions in the production of incidents attributable to cocain.

Tropacocain..... 10 centigrams.
 (Hydrochlorat of benzoyl-pseudo-tropein.)
 Distilled water..... 2 gr., 50.

M.—Ten drops for local anesthesia.

With this he was able to accomplish a perforation of the alveolus, extirpation of a sequester, and the extraction of roots without the least complaint from patients of both sexes. Besides, the anesthesia was more rapid than with cocain, commencing three-quarters to one minute after the beginning of the injection. The injection itself is painless, while the anesthesia persists longer and appears more profound than with cocain.

The learned doctor thinks that tropacocain being a synthetical product, and, therefore, less subject to change than one produced directly from the plant; and, moreover, this artificial product having stood the above experiments, there is no reason for its action as a drug to vary from day to day, as is the case with cocain.

Still another advantage of this new anesthetic over cocain is found in the fact that a solution of tropacocain for anesthetic injections can be preserved for several months, it being thoroughly antiseptic, while a solution of cocain becomes useless in about four or five days.

French Journal.

USES OF OUR INTERRUPTIONS.

Few lives furnish the example of an unbroken career. Between the beginning of the activity and its final close there are, in almost every case, such pauses as are not only not invited, but come as most unwelcome guests. In one case it is illness; in another, financial difficulty; and to labor there are multitudes of interruptions, produced by incidental and secular duties which must be discharged. The philanthropist who looks on money, not as meat and drink, but as a means of doing good, must devote much time to settling the importance of the relative claims made on him, to listening to innumerable ridiculous or trivial pleas, to the care of his personal investments, and to the thousand other things which are incidental to his one great purpose. There is, indeed, no class of workers for the improvement of human conditions, from whose life there must not be deducted an important part which would seem to be in no wise helpful to the success of his plans.

But looked at more closely, we believe that these chasms of work are not only not harmful, but actually promotive of the very objects which he who is stopped in the path of his work is aiming to gain.

Take, for example, the great slices of the year which Wesley was compelled to occupy in incidental and unexpected conversations, in his immense correspondence, and, above all, in his long and wearisome journeys in England and Ireland. Think of the many voyages of Whitefield on slow sailing vessels back and forth over the Atlantic, and his yet more tedious progress through American forests from Georgia to Massachusetts. Apparently, all these delays and interruptions were actually damaging to the work of these men, because they prevented that intense and concrete public activity which operated directly on the public mind. The same holds good of every reformer. Melancthon spent much of his priceless time in the dull monotony of the lecture-room, and Luther's captivity in the Wartburg Castle was regarded as a terrible hiatus in his wonderful work. Men of notable general achievement in all the Christian ages have had these very stopping places which they regarded at the moment as sore disasters.

The careful reading of Paul's career presents a singular series of delays, such as imprisonments, escapes, retirements, which he would have avoided, and long and laborious journeys in Asia Minor and Europe. "Suppose," we imagine, "he had not been a prisoner in Cesarea or Rome, or had not been shipwrecked, or had not been forbidden to work in Bithynia, or had not the thorn in the flesh, we might possibly have from him another epistle, or have been able to read in the Acts another sermon from the heroic man."

This reasoning is unwise, and for the very reason that it is based on the false premise that we do know what an interruption is. Now, we hold that our work must not only be of a certain kind to be successful, but that the forces which enter into it are of such varied character that it is impossible we should know at the moment what is helpful and what harmful. We are weavers, yet are grossly ignorant of the kind of threads which God sees that we need for the richest fabric. Fondly we look forward to a certain season to execute our cherished plans, and if the season does not come, but is prevented by some affliction, we count it loss. This is poor arithmetic. The embarrassment may have been wisely chosen by the Lord of the harvest for the very purpose of carrying out a higher plan than we dreamed of for the moment. Luther might never have finished his immortal German version of the Bible but for his Wartburg concealment. It is not at all likely

that Bunyan would ever have given to the world his "Pilgrim's Progress" but for his imprisonment in Bedford jail. Who can imagine that Newman would have written his "Lead, Kindly Light," but for his being becalmed and delayed in the Straits of Bonifacio? All Christian history abounds in these rich compensations which God has given to men, and to the whole world, in the very times of their disappointment. We must not think for a moment that, because we have what we do not choose, we are therefore impeded in our mission of doing good. *Ex.*

WHAT COMPRESSED AIR CAN DO.

Electricians think that this is the electrical age. Well, perhaps it is, so far as lighting, telephoning, telegraphing, and welding goes, but when it comes to the transmission of power they are talking too much. They have worked and studied for years to make an electric rock-drill which would take the place of the air-drill, but they have not succeeded. They have tried to make an electric train-brake which would bring a limited express train to a full stop sooner than the automatic air-brakes will do it, but they are so far behind that they will never catch up. It will not be long before street cars will be running with compressed air as the motive-power, and they will be safer, more easily controlled, will run as fast, will stop quicker, will wear longer, and will be operated at less expense than the best electric system they can put on rails. With a good air compressor, air at any pressure can be stored up in a reservoir or steel tank, and can be taken to any point within reasonable distance as economically, and with less waste, than electricity can be sent by wire. The air-compressor is a pump which is part of a stationary engine. The piston in the air-chamber first sucks the air in, and then forces it through a pipe to the reservoir. Of course, the more air one pumps into the reservoir the greater pressure to the square inch one gets. The compressed air works like steam, except that it is cold and has not the expansive qualities of steam. But steam cannot be carried through pipes out of doors to any great distance, for it would lose its heat, would condense, and soon turn back to water.

I know of a machine shop where there is not a belt, a piece of shafting, or an electric wire, for all the machinery, from a little emery wheel to a twenty-ton crane, is operated by compressed air. The shop is traversed by large pipes from the air reservoir, and from these main pipes smaller pipes lead down to the machines. Each machine, whether drill, planer, shears, lathe, bending rolls,

milling machine, punch, drop hammer, press, or cold saw, has its own motor or engine, and the mere turning of a valve starts or stops the machine.

A pneumatic clock system has lately been installed in the new criminal court building in Chicago. Pneumatic clocks are not new, for they have been used in Paris for twenty-five years. Now over 10,000 clocks are operated and regulated from the central clock by compressed air. The pneumatic clock system installed in Paris twenty-five years ago was the beginning of the compressed air central power system, which supplies over 10,000 horse-power to users in the French capital. It is used there for all purposes, from running clocks to operating dynamos for electric lights. The central station furnishes air at a pressure of seventy-five pounds to the square inch. It is sent around the city under the streets in pipes, and is sold to customers by meter, just as gas is.

The solution of the smoke problem in Chicago is easy. Put a central power station where the smoke will bother no one, and from this station send electricity, high-pressure water, or compressed air, to the business center and to the stock-yards. The cheapest power that can be used in this way is compressed air. Elevators, printing-presses, wood and iron working machinery; and, in fact, anything operated by steam, can be operated by compressed air. Some day we shall have pipes for compressed air under the pavements of Chicago streets, and there will be no smoke, if the tugboats and locomotives can be subdued.

Asphalt used for street paving is refined by compressed air. In its original shape, just as it comes from Trinidad, asphalt is too soft for street paving, and is not homogeneous. To refine it, the asphalt is boiled in kettles for three or four days, and, while the heat is on, it must be constantly stirred. Pipes with numerous holes are placed in the bottom of the kettle, and, while the asphalt is boiling, compressed air is forced through the pipe, and, escaping through the holes, it agitates the thick, black stuff. At first the air comes to the surface in big bubbles, and the asphalt slobbers all over the inside of the kettle, but at the end of three days the asphalt has become so thin that the air makes it boil in little bubbles, and it is then drawn off in barrels, where it cools hard and even.

In France they make a sort of silk from wood pulp by the aid of compressed air. The wood pulp is put through a chemical process which changes it to a sticky substance like gelatine. It is then placed in a closed tank, and compressed air is introduced. The air first presses the substance through a filter, and then into a smaller tank, which is under the large one. This tank is in a

horizontal position, and from it springs hundreds of glass pipes, in each of which the hole is about the size of a silk fiber. The wood pulp is forced through these tiny holes, and comes out in the shape of threads so fine that six of them are required to make a thread strong enough for weaving.

Compressed air was the paint brush which placed the color on the World's Fair buildings, and which to-day is painting railroad bridges and corrugated iron plates for buildings. The compressed air not only draws the paint from the tubs to the place where it is to be used, but, by atomizing the paint, sprays it over a large surface and drives it into the wood. In the big ship-yards of Cramp & Sons, Philadelphia, where Government armored cruisers are built, all the calking of warships is done by compressed air, and one compressed air calking machine does the work of four men. This calker can strike 1,000 blows a minute.

The same tool, in a modified form, is used by stone-cutters for dressing or carving granite. The little engine which does the work is in the handle of the tool, which is about as large as a chisel handle. The air is brought for the tool by a small rubber pipe, which is so flexible that it can be handled easily and at any angle. A piston and spring shove the tool in and out, and it can be so regulated that the most delicate work can be done with it.—*Ex.*

For the want of culture many a man of bright intellect is a negative quality. If the mind is dormant and unstored, it may have the latent power of a giant and be useless. It is a battery not charged.

To be a power he must wisely gather and carefully store away great thoughts, important facts, scientific problems, and philosophic processes, and he must press these into the smallest compass of reasoning, and thoroughly digest them. Thus the battery is charged.

More than this: All he is, and all he has, will go to waste if there is not connection with some practical work. Ah, this world has too many forces going to waste. There must be not only power, but usefulness in the expenditure of power. Here is a battery that is moving the world.

Thus we see that to accomplish great results zeal must be governed by knowledge, knowledge must be converted into wisdom, wisdom must be directed by discretion, and all must be concentrated on some useful purpose.

OUR QUESTION BOX.

With Replies From The Best Dental Authorities.

[Address all Questions for this Department to Dr. E. N. Francis, Uvalde, Texas.]

Reply to Question 166 October ITEMS.

In the use of alloy as a filling material for cavities in carious teeth, some waste is unavoidable, and, added to the accumulation of old fillings, may amount to considerable if saved.

The work of separation and recovery occasions much labor and expense, as well as necessitating a thorough knowledge of qualitative and quantitative analysis.

If the dentist wishes to have separate metals, he will find it more economical and satisfactory if he obtains the metals pure from the refiner than if he attempts to put them through the process of separation and refining, for an elaborate apparatus is necessary if the work is to be accomplished with precision.

If, as an item of economy, the dentist wishes to put the waste to its best use, he will find it profitable to work it over and use as an alloy for filling teeth. This may be done by the aid of such apparatus as may be found in any dental office for the fusing of metals.

A Fletcher crucible furnace No. 40, or 40 A (see The Wilmington Dental M'f'g Co.'s catalogue) is a good furnace. If coal gas is not obtainable, gasoline may be used cheaply and with satisfaction in a generator made at a cost not to exceed one dollar.

On the foot blower attach a T or Y connection, in order to force a current of air through the generator and attach air and gas tubes to furnace in same manner as for coal gas. Heat the furnace and crucible to white heat, line crucible with borax (sodium borate); pulverized borax, from which the water of crystallization has been evaporated ($\text{Na}_2\text{O}_2\text{B}_2\text{O}_3$) is preferable to lump borax ($\text{Na}_2\text{O}_2\text{B}_2\text{O}_3 + 10\text{H}_2\text{O}$). Fuse till it becomes a vitreous liquid and lines the sides of the crucible.

The furnace should be placed under a hood to protect the person from the fumes of mercury, which will be given off from the amalgam in the form of white vapor, and may produce dangerous symptoms of mercurial poisoning if inhaled. The waste amalgam should be in as fine a state as possible by cracking in a mortar.

When the crucible is heated sufficiently, uncover and drop in a small quantity of the amalgam; be sure the liquid borax covers the amalgam in order to remove all the oxid in the composition and to prevent its forming. Add the amalgam slowly and in small quantities, allowing time for the mercury to be driven off and for the alloy to be thoroughly fused, which may be known when the fumes cease to rise.

The sputtering of the molten alloy is caused by adding alloy too rapidly, or in too large a quantity. Continue this till all is fused, without allowing the alloy to cool at any time in the crucible, and keep the entire mass covered by molten borax. When all is thoroughly fused, mold in the form of an ingot, from which may be filed a zinc working alloy for the filling of carious teeth.

This process seems to improve the working qualities of any amalgam, Remove all vitreous borax from the ingot before filing, and remove all particles of steel, found in alloy after filing, with a small horseshoe magnet.

J. Bruce Pherrin, Springville, Iowa.

An impression can be taken in the following way with satisfaction to dentist and patient: Take impression in wax and plaster; first in wax, and then cut out the wax under all hard places in mouth, leaving the material so it will press up all soft tissue. Roughen the wax, and after placing very little plaster over it, insert in mouth, and force to place with considerable pressure to insure the condensation of all soft tissue.

After plaster has thoroughly hardened and been removed from mouth, place a strip of heavy tin foil on each side of the impression, thus causing it to be a trifle narrower than the mouth, and allowing plate, when made, to bind on each side of the ridge. I use a thin air chamber, shaped nearly to conform to the hard ridge in roof of mouth.

If the above detail is followed carefully, and the teeth correctly articulated, there can be no failure.

Thomas W. Onderdonk.

Charles A. Nesbett, Pontiac, Michigan, refines amalgam waste for fifty cents an ounce.

W. K. Eggleston.

Dr. Barker, of Brooklyn, New York, states that unpleasant symptoms from cocain are not present when a good make is used. The doctor did not give address of manufacturers, thinking it might be considered as an advertisement. If the querist will address Dr. Barker a personal letter, he will receive information.

A. W. C.—The subject of bleaching dead teeth has been so thoroughly discussed in the Question Box, and other departments of ITEMS, we must refer you to back numbers. The tooth is dead, and root should be cleansed at once. See "Practical Points," pages 753 and 754 December ITEMS.

A saturated solution of camphor and chloroform will almost instantly relieve after-pains of extraction. Apply on cotton, and remove soon as pain is quieted.

D. W. Barker, Brooklyn, N. Y.

Question 180. *Which are the strongest and most serviceable, plain or gum teeth?*

Block gum teeth are the strongest if attached to rubber base, but for metal attachments we find all teeth alike under proper conditions.

Question 181. *I use a mixture of iodine and pumice to remove the green mucous stain on children's teeth. Why does it act better than pumice alone? Does it partake of an acid, and is it injurious to the teeth? Would you advise using chalk immediately after using the mixture of iodine and pumice?*

Iodine has a neutral reaction, combines with most of the non-metallic, and with many metallic elements, forming chemical compounds. Iodine destroys vegetable colors, and will act as a bleacher when applied to vegetable stains on teeth. It will also combine with metallic stains on teeth and produce chemical action to some extent. The only acid found in iodine is hydriodic, which is not found in a fresh mixture, but is caused through the action of light, etc. This acid is too weak to effect tooth structure, but chalk, or some good polishing powder, should be invariably used after the application of a coarse powder to enamel surfaces.

PRACTICAL POINTS.

Mrs. J. M. Walker, Bay St. Louis, Mississippi.

Immediate Root Filling with Abscess Present.—Remove mechanically, as much as possible, of the disintegrated pulp tissue; syringe the root canals repeatedly with $\frac{1}{1000}$ solution bichlorid of mercury. When clean, force a solution of 20 grains chlorid of zinc to 1 ounce water (40 to 60 grains in chronic abscess) through root canal and fistulous opening till gum shows white coagulum. Fill at once with 1 drop of $\frac{1}{2000}$ solution bichlorid of mercury mixed cement. Paint the gum with aconit and iodin, equal parts, as a precaution.

Dr. Fr. Abbott.

Salol as a Pulp Capping.—Salol is non-irritant and non-escharotic; is easily applied without pressure, in perfect contact with the exposed pulp. It may be mixed with iodoform, aristol, or oxid of zinc, if desired.

O. A. Weiss.

Treatment of Elongated Loosened Teeth.—Extract the tooth, remove the pulp, sterilize and fill the root canal (from the apex if the tooth is sound); deepen the socket till it will admit the tooth to a level with the adjoining teeth; sterilize the socket and the tooth, and insert the tooth, securing firmly with binding wire looped around the adjacent teeth.

T. W. Pritchett.

Painless Pulp Devitalization.—Arsenious acid and creasote thoroughly diffused through cotton fibers chopped fine, as suggested by Prof. Flagg, is a convenient application to handle, and if applied without pressure, inflammation being first allayed by sedative applications, will cause no discomfort to the patient.

Thomas Fillebrown.

Root Canal Filling.—Select a tin or lead point, coat it well with some antiseptic paste, cut it of a length to have a short end in the pulp chamber, and send it home to the apex. Fill the rest of the canal as preferred. In case of subsequent trouble the rod is readily withdrawn after unstopping the cavity.

Dr. Williams.

The Wilson-Logan Crown.—Select a suitable Logan crown and prepare the root to receive the pin. Cut off the tooth a little below the gum line; band and cap the root; pierce the cap to receive the pin; grind away the palatal portion of the Logan crown without disturbing the pin; secure correct position of the crown on the root with cap in position, then remove the crown and force the pin through another piece of gold large enough to cover the ground portion of the crown; burnish down the gold, place some

sticky wax round the pin, warm and place in position; remove all together, invest and solder; set with gutta-percha. By this method added strength is given to the Logan crown. *H. H. Wilson.*

Porcelain-faced Dummies for Bridge-work.—Grind a dove-tail tenon on the back of an English pinless tooth. Fit a mortise to this by burnishing thin gold over it. Strengthen and shape the mortise on its lingual surface and attach to the cap with 22-k. gold solder. Shape the mortise so that the face is inserted from the occlusal end. This avoids the danger of checking, as in soldering, and renders easy repairs in the mouth. *F. B. Kremer.*

Mouthwash for Use in Treatment of Pyorrhea Alveolaris.—Prescribe the 3 per cent aqueous solution of pyrozone, with a soda-mint tablet dropped into the quantity to be used each time. This overcomes the soapy taste, hastens the liberation of the extra atom of oxygen, and increases antiseptic action; also neutralizing the small degree of acidity present. *W. X. Sudduth.*

Gutta-percha Fillings.—The manner of treating the gutta-percha is of the greatest importance. A metal or soapstone dish placed high enough above the flame to maintain the proper temperature, heating the instruments to higher temperature in the open flame will secure the best results. Wipe out the cavities with resin varnish and insert the gutta-percha in small pellets. When a little overfull condense with a warm flat instrument. Trim carefully all overhanging edges, smooth with linen tape slightly saturated with oil of cajeput to remove all fragments. Finish off with instruments, wiping off with dry tape as a final finish.

A. H. Stoddard.

Prevention of Pain from Arsenical Applications.—Apply arsenic and creasote, and prescribe acetanilid in $2\frac{1}{2}$ grain doses, to be repeated hourly while pain lasts. *I. S. Sanger.*

Treatment of Alveolar Abscess with Fistulous Opening.—Open up the canal sufficiently to get an explorer through; dry thoroughly with bibulous paper; flood with hydronaphthol solution (10 grains to 1 ounce alcohol), and vaporize with root drier. Next pump carbolic acid, full strength (Calvert's No. 1) through the canal and out through the fistula, and vaporize what is left in the canal; then saturate the canal with equal parts oil of cloves and cinnamon, and vaporize again. Wipe out the canal with chloroform, and pump chloro-percha through the canal, and out into the fistulous tract if the abscess be of long standing. Fill the root solidly to the apex with gutta-percha. *A. C. Hart.*

To Clean Impression Trays after Using Modeling Compound.—Boil in sal-soda water. *F. A. Greene.*

Cement Fillings with Metallic Surface.—Incorporate aluminum filings with cement while mixing. When the mass is set, burnish the surface, which spreads the metallic particles over the cement.

W. X. Sudduth.

Impressions for Partial Dentures.—In difficult cases, where the remaining teeth lean toward each other at their occlusal portion, grind the teeth into place and fasten them in position with hard wax, then take the impression with teeth and wax in position.

A. G. Bennett.

Persistent Hemorrhage after Tooth Extraction.—Give a full dose of tincture of opium and 20 grains of calcium chlorid.

Dr. Wm. Huntly.

Anti-conservative Treatment of Exposed Pulp.—After removal of decomposed dentine put the exposed portion of the pulp in a pickle of pure carbolic acid for two minutes, then cover with sandarac varnish and cotton. The next day remove the dressing and apply arsenious acid directly to the exposure, sealing as before. On the fourth day remove the arsenic, uncover the pulp, excise the exposed portion, bleeding it freely to prevent pinking of the tooth. Place in the pulp chamber a piece of dry absorbent cotton, carrying as much as it will of iodoform powder, insert temporary stopping till final operation. When the pulp tissue is removed from the canals, with a No. 7 or 8 uncut Swiss broach, work to the apex a mixture of campho-phenique iodoform and zinc oxid, and insert a gutta-percha cone moistened with chloroform.

Chas. Harker.

Arsenical Applications—How Long to Wait.—The separation of the dead from the living part never takes place till the seventh or eighth day (and sometimes the tenth) after the arsenic is applied. On the eleventh or twelfth day you may find putrescence beginning; previous to the eighth day you will never find the eschar coming off the wound cleanly; you may amputate or extirpate the pulp, but you will never get the clean separation that is so desirable if arsenic is used, without waiting for it at least eight days.

Dr. Bogue.

Thymol as an Obtundent.—In deep-seated caries, with great sensitiveness of dentine, fill with gutta-percha, touching the warmed and plastic mass to thymol crystals, which will exert an antiseptic and obtunding effect on the dentine.

E. C. Kirk.

Application of Nitrate of Silver.—Apply the rubber-dam, and use a strong solution of the salt, evaporating the moisture with hot air syringe. Apply a solution of soda to neutralize any acid remaining.

A. M. Holmes.

Waxing Up a Case.—Having the wax exactly as you want the finished piece, coat the surface with oil; a few puffs with the mouth blowpipe will render the surface perfectly smooth and uniform. Remove any adhering particles of wax from the teeth with a pledget of cotton dipped in chloroform. *H. B. Meade.*

Protection of Cement Fillings.—Melt together resin and wax on a spatula, and pour over the cement filling, after it has stood a few minutes. It will not scale off as does paraffin, and after a day or two the filling will take a polish almost like ivory.

E. T. Darby.

Sterilization of Dental Instruments.—The Arnold sterilizer is a simple device for keeping a metal chamber at a temperature of 212° F. Nickle-plated instruments are safely kept in the moist heat; steel instruments are laid in a zinc tray containing a solution of potassic hydrate, and placed in the sterilizer. Syringes supplied with a felt packing, touched with soap, are sterilized in the metal chamber, as are rubber-dam straps and holders, after each use.

W. H. Potter.

To Counteract Contraction in Vulcanizing.—Set a jack-screw closely under the second molars, or as far back on the plate as possible. Imbed the points in drops of wax, and wrap the jack-screw in tin foil to keep the plaster from it. *Geo. B. Snow.*

Relief of Gingival Soreness from Setting Crowns.—The application of euprophen, it is said, will cause the soreness and irritation to subside promptly; recommended also for the relief of excoriations under ill-fitting plates, etc. * * *

A Temporary Filling for Deciduous Teeth.—A paste made of aristol and engenol, or aristol and eucalyptus, make an excellent temporary filling for the pulp chambers of temporary teeth.

C. B. Rohland.

Antiseptic Bath for Instruments.—

R.—Alcohol..... 3ij.
Hydronephthol..... grs. xx.

Dip instruments in and lay away to dry; will not tarnish them.

A. W. Harlan.

Fillings for Deciduous Teeth when Moisture Cannot be Excluded.—Dissolve Gilbert's white stopping in chloroform. Make a thin mix of zinc phosphate, and thicken to a putty-like mass with the chloro stopping; dry the cavity as well as possible, and pack with the above, finishing with burnishers; may almost be used "under water."

S. E. Gilbert.

ITEMS.

To true corundum wheels use emery wheel. It is quicker and better than any method I have found. *Ira B. Archer.*

* * *

In making vulcanite plates we fail in securing a good fit sometimes by cooling too quickly. The best fitting plates I have are left in the vulcanizer twenty-four hours after vulcanizing.

O. Howe, Princeton, Mass.

* * *

Ordinary glazier's putty molded to the right consistency and perfumed with oil wintergreen, is, in my hands, a useful impression material for crown work, on which fusible metal can be cast with great perfection.

W. S. Elliott, D.D.S.

* * *

To those who would like to use a hot-air syringe I would suggest a very simple and easily-made substitute. Procure a small brass blow-pipe, one with a bulb, and which separates near bulb; to this attach a double bulbed air pump for continuous blast, and you have a hot-air syringe as good for all uses as can be bought.

C. H. Lovejoy, D.D.S., St. Paul, Minn.

* * *

PYROZONE, TO PREVENT EXPLOSION.—Both filing and grinding the ends of the tubes cause heat and necessitate some handling. I place the tube in a glass of ice-water for a few minutes, then take it out and quickly nip off the extreme tip end with a pair of forceps having concave beaks. It is done in an instant. There is less loss of the pyrozone than when I used the file, or ground the end off, and I think the forceps are better employed in that way than in pulling out roots which could be made very useful.

A. W. Sweeney.

On page 17 of *ITEMS* (January, 1895, issue), is a short article from Dr. G. Chisholm, who recommends combination of tin and amalgam as filling material for certain cavities. Theoretically this is a splendid idea, but, as a matter of fact, tin in contact with freshly mixed amalgam is readily amalgamated by mercury of the amalgam, forming an amalgam much like that with which mirrors are backed, so that we have this soft material at the most vulnerable portion of the cavity where it quickly occasions failure of the filling. I write this in the light of experience.

M. McFerrin.

* * *

Not long since a vicinity news correspondent of a Rochester paper reported a case of "bled-to-death from tooth extraction," and thus set the fidgety patient by the ears. Hoping for an item, we wrote an esteemed member of the Seventh District Society, resident in the village near which the case had been located, and got for answer the following:

"In regard to the so-called 'bled-to-death' case, I have made inquiry of the attending physician, and he gives me the following facts. This case was a pure and simple case of 'Purpura Hemorrhagica,' and had no particular dental relation other than that he bled from the mucous membrane of the mouth. He also bled from the nose and likewise from the bowels, but his final hemorrhage was in the brain. His physician tells me it was a constitutional case; that he had been called to see another patient and incidentally expressed the thought that the young man did not look well. He examined him and diagnosed the case at that time, putting him under treatment, but had little hope from the first. This is all. It has no dental significance."

All of which goes to spoil another story. *Odontographic Journal.*

* * *

After several years of observation I am convinced that there is no better method of treating the gums, after all deposits are thoroughly removed from the teeth, and the use of medicants as may be indicated, than friction-massage with the fingers. The daily use of a simple medicated powder, especially at night before retiring, is very essential, as the putriferactive action of food deposits and acid secretions are more destructive than during the day. Pumice or os-sepia should never be the ingredients of tooth powder to be used daily, neither should a stiff and large brush be used. It is a foolish idea that such a brush is beneficial; both lacerate

and cut the gums away, exposing the necks of the teeth to the action of caries and the rapid wearing or notching of the cement. A brush of medium size and stiffness intelligently used with a powder containing an ounce of boracic acid to the pound of the usual formula, and an occasional use of listerin with massage will ordinarily insure a healthy mouth.

Children should be especially taught massage of the gums, and the use of a brush with an appropriate tooth powder. Absolute cleanliness is also essential to the beauty and preservation of the teeth and health of the mouth. Parents should make an early call on a competent dentist in their behalf, for advice and needed attention.

R. J. Parrie, Cincinnati, O.

* * *

Miss H., twenty-nine years, a blonde, of sanguine-nervous temperament, had been suffering several days with toothache and facial neuralgia. On the 18th inst., patient being unable to leave home, I was called in. I found several decayed teeth, most all above, four below; patient insisted that the most acute pain came from the right lower six-year molar. Examining closely, I found no inflammation; gum in healthy condition; no decay; but the enamel all gone and dentine worn smooth to the level of the gum. I extracted the tooth and left, within half hour after extraction the face swelled. At 8 p. m. I made a thorough examination; still no inflammation or fever, gums not swollen, and no pain in the jaw; patient complaining of face being cold instead of warm; swelling being solely in the cheek, opposite space of six-year molar; patient suffering from toothache in right upper cuspid and central incisor. I stopped the toothache and left, saying I would call next morning. On the 19th found patient had used poultice all night; jaw swollen worse and becoming hard and very painful; still no swelling in the gums, no fever, no pain in the jaw, and place healing nicely. I discarded poultice; lubricated the jaw, both inside and out, to reduce hardness in the swelling, and though patient had no cold, as far as I could judge, that night I had her take a dose of salts, bathe her feet in hot water before retiring, and take broken doses of quinine. 20th, swelling gone down some, and hardness greatly reduced; repeated lubrication. 21st, still improved, and I extracted all upper teeth, twelve in number, no swelling at all resulted and gum healing nicely. This morning, 9 o'clock, no pain, no swelling, but a small hardness exists about the size of a dime. Query. What caused the swelling, and what is the treatment?

E. L. Hayes, Madisonville, Ky.

EDITORIAL.

ORATORY.

As dentists we are frequently called on to exercise the power of oratory. Three qualities of oratory especially should be attained by every one of us: First, ability to think clearly, tersely and methodically on our feet while before an audience; second, ability to express what we think forcefully, precisely and concisely; ability so to express them as to make a lasting impression for practical results.

Most of us pay but little attention to how we think. We allow our thoughts to rattle on loosely, incoherently, at random. No wonder that when we have cause to express them we are poor conversationalists and poorer speech makers. To be logical speakers we must be logical thinkers, and this cannot be without we cultivate the habit of clear thinking. It must be a constant practice. With this training we can come before an audience, not wanting in the power of deliberate methodical and logical speaking; for if our thoughts are well in hand, we shall find it easy to clothe them with words.

Yet some speakers are clear, but not forceful; they are terse, but not precise; they are methodical and logical, but not concise and simple enough in statement for the uneducated majority to understand them; in essay and speech words flow with an uninterrupted effusion, but not with the thoughts in the foreground; there is lacking clear cut statements of facts, and precise and concise language of logical conviction. The grace of delivery and beautiful construction of sentences may be admired, but the beautiful dress smothers the thoughts. We come to the table to be fed; therefore, though the dishes may be grand, the arrangement superb, and the service costly, if substantial food is lacking, or hidden, we go away dissatisfied. What has this wonderful display of oratory brought us, is the question?

Then there is language that is attractive, impressive, forceful, but some how when the end comes, the style, the manner, the oratory is remembered better than the lesson. We have been left among the clouds, amid dazzling grandeur, and we come down to our common sphere no richer, no wiser, no better prepared for our ordinary duties than before. Perhaps we ought to have brought away something useful, but we were too much taken up with the display to think of it; the ideas may have been brilliant, but the brilliancy dazzled us.

Let us, therefore, keep in mind that the three chief qualities of oratory are to be able to think clearly while speaking to an audience; to keep what we think well in hand, and so to speak as that it shall be remembered and put in practice.

WHY DON'T YOU LAUGH ?

You are the only animal that can laugh, and yet your face is as long and homely as a baboon's. No wonder you don't get along. Who wants to come to a grave digger to have unpleasant work done? It is bad enough to be hurt; but much worse to be hurt by one who wears grave clothes, and feels like the skeleton of death.

These long-faced dentists are no good. Away with them! They make pain doubly painful, and dread doubly dreadful.

Meet your patient with a smile. If he is in pain, laugh it away. At least half of it may be cured by a cheerful reception. Let him see you have confidence in your ability to make him happy, and that without dragging him through the grave to get there. Cheerfulness begets cheerfulness; confidence begets confidence, and a prompt and jolly act to bring happiness begets promptness of submission and relief. There, it is all over, and our patient is on the other side of suffering, laughing with us that the thing was such a trifle; proud of his courage and proud of us for so heartily encouraging him, and laughing him through. A physician or a dentist that is not made up of laughter and jollity had better retire.

WE SHOULD BE CREATORS.

In a subordinate sense we are intended to be creators. Our passions, and intelligence, and long patient working may bring forth a world. We are here for this purpose. But how many fail in their mission. Many of us do not try to do anything but play, loiter, waste life, and then die. We and our world that should have been, sink back into nonentity and forgetfulness. If we try, it is only the beginning. Oh, how many beginnings there are. Half-made worlds are scattered about everywhere. We can each of us recount the beginnings of things by the hundreds—great worlds of our own—the beginnings of them that might have been something grand. We have breathed on the void and it has become moving, turbulent elements; chaos has turned to substance, and substance to solidity, and solidity to form, and form perhaps has begun to take definite shape. But where are the beautiful fields and fruits and animate life?

Many teachers fail to assist their scholars farther than the elements, the a b c of knowledge. The full creation of a world of thoughts and purposes, of things of life and worth seem to be far from their mission. Cramming the cranium with crudities without inspiring originality is the sum of their effort.

When going through my academic course, I was asked by my professor of chemistry to assist him in preparing for a lecture on electricity. I was much interested. At the close of the lecture he placed me at one side of the charged leyden jar, with another boy at the other side, and caused all the young people in the hall to form a circle, taking hold of hands that they might feel the current of electricity. I noticed that as I placed my finger on the paper covering of the jar a spark left my finger, penetrating the paper as a small dot, and if I stroked the paper there was a line left on it. I could hardly sleep that night thinking of that curious occurrence, and how easily it might be made of wonderful utility. I almost formed the idea of an electrical alphabet, by which I could converse with the other boy and he with me, though our distance might be miles apart. It so excited me I could hardly wait for the next day's recitation.

When it came I told the professor my thoughts.

"Oh fie, fie," said Prof. Boyd; "you are excited about a mere will of the whisp, Tom; you will grow crazy if you follow up that foolish idea. Why there is a man now in Baltimore, by the name of Morse, who has used up his fortune on that very phantom, and he has used up all his friends' money he could borrow. He is a veritable maniac."

And so my beautifully forming world was crushed in its beginning. Why, that professor had actual written a book! Of course he knew everything; and if he said "It can't be done," it was not for me to say "It shall be done." So a world was lost to me just as I was preparing to give it form. And thus many profound professors dislike to have talkative boys in their class. When a scholar attempts to rise above his text-book, and especially when he assumes to pass on before his teacher, he must be checked, and made to know his place. It is the scholar's business to stow away in his memory facts, not to run away into unknown regions of speculation. He will get lost.

Well, it would be a good thing for more boys and girls—and some older—to get lost in the mazes of a new world once in a while.

How many times we allow geminating thoughts to be brushed away by great broom sweepers who have no business on our premises. Scholars want spades not scythes, cultivators of virgin soil, not seeds from mummies to grow mummies. Let them know the teachings of "authorities," but oh for teachers that will encourage thoughts that go beyond the conception of both book and teacher, for education is more than memorizing; culture is more than seed sowing; a well-rounded character is more than a cyclopedia.

Cleaning the teeth should be the first work of the dentist instead of the last. It will not only better reveal defects, and enable us to do better work, but prevent the necessity of working in filth. Every particle of tartar should be removed, and every tooth scrupulously polished. And such services should be paid for quite as liberally as any other work.

WHAT IS YOUR LIFE?

Though there is so much to do and enjoy that is noble and grand, how selfish, worthless, mere animal lives we see about us—so many who think little thoughts, indulge in mere childish pleasures and have only sordid desires. Their lives are feeble, useless, frivolous. "Vanity of vanities, saith the preacher, all is vanity." If millions who live were swept from the earth they would not be missed. The world would be better off without them than with them. Not because they are not capable of being useful; they are endowed with wonderful powers, but they are uninspired by any good motive. They live as the beasts live, to eat, sleep, and die.

If you are good at figures reckon up your past and find the sum of it. If you were to pass from us to-day, what would the record be?

I am not preaching a sermon. I am only calling your attention to a problem in mathematics. Sum up what you have accomplished, subtract the evil, and what is left? Don't go out of life a negative quantity.

I know we do not like to look at such things; but may it not do us good? If really the figures are unsatisfactory, perhaps something can be done to change them. Let us try. There is sure to be something to inspire noble efforts where there is a noble purpose. Every life is glorious in some sphere when at its best. Right about face, march!

Bridge-work, especially permanent bridge-work, should be made so that the tooth-brush and the rinsing with water may reach every part. Most of the bridges we have examined have, in some places, harbored filth where the most cleanly disposed could not reach it. Even removable pieces, on account of the difficulty of removal or neglect, had been so long without cleaning they were extremely offensive.

There is no necessity for this. If the brush can reach every

part where food can lodge, they can be kept as clean as the natural teeth. For the year past I have worn three permanent bridges of this character, made by Dr. Bryant, of Washington. I think I am particular in having a clean mouth, and that I can detect foulness, and I believe my teeth and mouth are as clean and sweet as before using them. Labially and buccally the teeth, or bridges, come in quite contact with the gum, but lingually they recede from these points of contact so that the brush can reach every part.

Of course the gold shells covering the natural teeth used as posts are made to fit nicely, and after being soldered on the bridge are made permanent on the posts with oxiphosphate.

Then again, the preparation of these natural teeth for posts were much more simple and painless than is the common practice. For many years I refused to have a bridge in my mouth, because those I applied to wanted to cut away so much of my natural teeth. In these bridges a judicious use of a thin corundum disk soon brought the teeth into shape for the cap-band, as this was carried down only over the swelling of the crown, and not on the neck of the teeth.

If the operator is careful to use an oxiphosphate that in its thick creamy state will strongly adhere to the gold and the tooth, and will not crumble or dissolve with age (which is possible to obtain), you have a plate quickly and cheaply made, and permanently and pleasantly useful.

Don't isolate yourself either from society or from your profession. There are those who isolate themselves even from their own families; they are not much more than boarders, and poor, grum, troublesome boarders at that. Be lovable at home, social in society, and honorable, useful and teachable in the profession. There are some who are a disgrace everywhere. Oh, don't be one of them. If you will be an honor to your family and to your community, and to your profession, they will honor you. And with honor will come success.

HINTS.

Mind your business and your business will mind you.

* * *

Do not brag too much of what you have been, or what you are going to be, but show by what you do what you are now.

* * *

Why be a barnacle? Be the ship. There may be a use for a barnacle, but it is generally a nuisance. Better be a noble ship. You can have your choice, and there is a big difference.

* * *

Be determined to make the world better and wiser by your living in it. If you go out of it as simply a human item of selfishness, giving out nothing to advantage it, and taking in nothing but the demands of an animal, you will certainly have lived in vain.

* * *

Generally, hereditary irregularity of the teeth should not be interfered with, unless it is a decidedly unsightly or a serious inconvenience, and even then the most skilful service is seldom of permanent usefulness. We may move the teeth into proper position, but they have a provoking tendency to return to their former position.

* * *

Always have one friend with whom you are on excellent terms, yourself. If you cannot get along with him, do not be surprised if others cannot; and if you cannot get along with him, it is no wonder you cannot get along with others; and if that one can vanquish all your fondest hopes and ambition within you, how can you expect to conquer the kingdom about you? Conquer yourself and you can conquer the world.

* * *

Many believe rubber has been a curse to the profession and to patients. Do we not rather mean cheap dentistry has been a curse? But, perhaps, we might still better express ourselves by saying, poor dentistry has been the curse. Good work and poor pay, and poor work and big pay, are chief embarrassments to dignified successful dentistry. We have all seen poor dental work outside of rubber work, and poor work of any kind is a curse.

* * *

The proper preparation of a tooth is quite as important as its skilful filling. To know what portions of the enamel should be sacrificed and what preserved; what of the dentine should be

retained and what removed ; what the position and proximity and condition of the nerve, and what its treatment, if any ; and everywhere and in everything, what not to do as well as what to do ; these, and many other queries, should press on our attention. Too many dentists work on a tooth as they would work on a piece of dead ivory ; they have little conception of the difference. They work as a mechanic and not as a surgeon, as a clumsy cobbler and not as a professional and esthetic artist, and display instead of hiding their work.

* * *

Be thankful for troubles and disappointments and losses and crosses ; they are often the best things could happen. To have our own way uninterruptedly would be the worst thing that could happen ; we would surely be spoiled. How often children are spoiled in this way, and we are but children of larger growth. The best of men have their rebuffs, and humiliations and defeats ; it is largely their victories over these that give them strength and wisdom and power.

* * *

Better be a reflection than nothing, but I would rather be a sun than a satellite. It is an advantage to have a light to follow, but it is better to be the light. What a cold bleak thing the moon is ; but really what a warm genial inspiring world the sun is. How it makes things grow and laugh and bear fruit. There are suns among men, and there are barren moons. These latter have the face of a man, but not his winning love and genial, useful life. Which are you ?

* * *

In excessive bleeding after extraction it is generally supposed cold water is the thing to use, and that hot water will increase bleeding. Experience will prove just the opposite, so also where there is severe pain hot water is generally better than cold. To produce a coagulum, cold water and astringents are best, but this result is just what is not desirable, for often the fresh blood soon forces its way through the clod and the bleeding is increased. Hot water tends to close the mouths of the blood-vessels, and to prevent the formation of the clot.

* * *

It is hard to say who will succeed. Some years ago a tall, raw-boned, gaunt-looking young man wanted me to go to his office with him to see a patient. He took me to the very extremity of a dark hall, up the back stairs through his bed-room, into a lighted closet he called his office. Here was a lady patient of respectable appearance in a very inferior chair he had borrowed. That man is now a leading dentist in Brooklyn.

When I was on the Board of Dental Examiners of New Jersey, a spruce young man of good address and fair education came before us, and I said to myself, that young man will be a success. Though many years have passed he is still a third-class dentist.

The former was a close student, the latter superficial in study and observation. The unprepossessing young man was a gentleman in the strictest and broadest sense of that term; the other was self-important and overbearing; the first was frugal, laborious and faithful; the other extravagant, lazy, and inattentive to business. There was one other difference; the first was blessed with nothing, and had no one to lean on; the other was cursed with rich friends who "set him up in business" and supplied him with cigars and beer.

* * *

We are not sure but smoking preserves the body, as hams hung in the smoke-house are preserved; for we saw an old man the other day who had been dead some time, but was so pickled in whisky and cured in tobacco smoke that he was kept above ground long after he should have been put in his grave. His friends had simply forgotten to bury him, or at least every one about him wished he was buried. Is this the reason some husbands object to the wife smoking, because by smoking she would live too long?

I knew a prominent lawyer once, Mr. Sargent, who was so continually soaked in whisky and "cured" in tobacco that his wife could not sleep with him, and he himself preferred to take to bed with him, his whisky bottle and his pipe, than to have the company of his wife; yet through the day he was comparatively a gentleman. He persisted in smoking himself to sleep. She said to me, in his presence, "He is a kind husband, but he is indifferent to every pleasure but these stimulant narcotics. In an important sense he is already dead." He rejoined, "Than to be deprived of these luxuries, I would prefer being dead. They are indispensable."

One morning as I was passing to my office, I saw confusion there. Stupefied with liquor, he had, during the night, set the clothes of his bed on fire by going to sleep with his lighted pipe in his mouth, and had been smothered to death. Few but the tobacconist and the saloonist mourned his loss.

* * *

He that loses his conscience has nothing left that is worth keeping, therefore be sure you look to that. And in the next place look to your health; and if you have it, praise God, and value it next to a good conscience; for health is the second blessing that we mortals are capable of, a blessing that money cannot buy, therefore value it, and be thankful for it.—*Walton*.

FOR OUR PATIENTS.

PRAY FOR A CYCLONE.

Don't be afraid of a cyclone. They are often blessings in disguise. The muggy, sultry, oppressive atmosphere that usually precede and cause them is enervating and unhealthy; but the mighty rushing wind, and the lightning and thunder, and the down-pouring torrent, and the pure air from high altitudes, though they tear down frail dwellings, and uproot tender trees, they show us the solidity of houses well built and trees well rooted.

Oh, for such a cyclone to arouse some of our boys and girls! It would undoubtedly send cobble houses flying and prostrate nursery plants, but it would prove the survival of the fittest. Some persons do not deserve to live, and many who do would live and do better if they did not have such a nice time. Opposition, and adversity, and necessity are the making of some people. They need a veritable cyclone to wake them up.

One of the greatest blessings that ever came to an old parson I knew once was a tremendous toothache. He had been in cyclones, and avalanches, and terrible storms, and still he was sleepy and dull; but the toothache fetched him. It was one of those awful overpowering, prostrating, banging toothaches that only comes to a man once in a century. At least he thought no one else had ever had such a "blow out." It was at two o'clock in the morning, in the midst of a raging northwest blizzard, and it came on him as sudden as lightning. I had to wade through terrible snow drifts to reach him.

"What is the matter, Dominie?" said I

"Thunder and lightning! The tortures of the damned! Hell fire in all its fury! That's the matter."

"Strong language."

"Weak as dish-water compared with this confounded, furious toothache. Come, out with the horrible creature. I would as soon live with the devil as with such a tooth."

But the pain was not in one tooth nor two, but in all on the left side, above and below.

"You have been through a terrible storm which has brought on severe congestion."

"Out in a terrible storm," said he, sneeringly; "nothing like the terrible storm raging in my mouth, and in the midst of it devils with their pitchforks are dancing a jig on my nerves."

He used some strong words when I told him there were no teeth to be extracted.

"What did you come here for?" he bellowed out. "You are only adding insult to my torture."

But I subdued his pain and left him comfortable. In the morning I inquired how his teeth were. He replied—

"Aching like thunder, sir. Imps of hell are squeezing the life out of every nerve, and grinning at my torment."

After I had again relieved him, I asked him how he felt.

"Doctor, I have been to hell, and just got back. I feel like dancing a jig with angels now. Glory! halleluiah!"

Soon after this he preached a sermon on "The Evangel of Suffering," in which he said he never before this experience knew "the sweets of a calm after a tornado."

Boys, girls, pray for a cyclone. And if it happens to strike some of us older ones it will do no harm, unless we are living in play houses, or sleeping under slender bowers.

ARE INVENTIONS ACCIDENTS?

The popular idea, that inventions are accidents, is disproved by the history of nearly every ingenious thing brought to light, and by the character of nearly every inventor.

There are some things that seem to come by accident; but, as a rule, inventors are prodigious workers, and their achievements are the result of restless, intense thinking, plodding and persevering. And more than this: the history of most inventions show that it has taken more than one man, and in some, more than one generation, to perfect what has proved of permanent importance. The printing-press is very old, but what a contrast between the first and the last. We are told that Franklin got the key to his wonderful knowledge of electricity from flying a kite, but this was only an incident in his long and laborious studies. And all his life-long studies and experimenting brought him only to the childhood of those who followed him. We are told that Watt learned the secret of the steam-engine from seeing a tea-kettle boil, but Watt was only stimulated by that to pursue farther what others had already accomplished; and he did not perfect the steam-engine; it took many Watts to make it the mighty moving power it now is. Morse was a hard-working, deep-thinking, sacrificing, prophetic genius; but even Morse only laid the foundation of what we now see in telegraphy. See how improvement after improvement has pushed and is pushing on the triumphs of electricity. It is but a

few years since I was passing the little isolated shed in a corn-field, in which Edison was so crudely experimenting that the passengers in the car laughed as they saw his queer wires, stretched from post to post, on which crude lanterns were placed, all among the corn. But Edison worked almost incessantly, day and night, and did wonders. Yet, as great a genius as Edison has shown himself to be, see the hosts of ingenious minds that have spent and are spending their lives to outwit and outstrip him, and they are doing great things. As much as Edison has done, where would electricity be to-day if only Edison had lived? And still we are only in its A, B, C. All that has been is only the rudiments of what is to be.

Young man, wake up! We want you. In every department of study and labor there is an open field, rich in undiscovered wealth. Examine what is as a prophesy and a stimulant of what is to be. But as rich as is this undiscovered wealth, expect nothing without hard work and untiring study, without exhaustless patience and indomitable force of will and courage.

Do not be flightily in your leaps, nor exhausting in your fiery zeal. Commence at the very beginning of your investigations, and know accurately what has been done. Study thoroughly the scientific and mechanical principles involved, with the practical bearing on every-day life, and the intrinsic worth of what you would accomplish. To have a definite idea of what must be done, you must know what has already been accomplished. There must be method and carefulness, and a sure foundation for every step, and plenty of time given to every detail, "though it take all summer."

Do not fret because you have not all you could wish, or all others have. The happiest time a man has is while he is climbing. The most substantial things grow slowly. If, therefore, you are a little better off in knowledge, skill and position this year than you were last year, and last year than the year before, and have the prospects that this gradual improvement will continue, you are—like the beautiful development of childhood—in the most enjoyable period of life.

Those who have commonly and constantly every thing they can desire have few luxuries; for luxuries are rarities not easily obtained.

Give the poorest and abject person a ray of ambition, and you have given him what will make him a king, if he will follow that ray out in its brightening. Though at first only a ray, that ray will become a sharp instrument of light penetrating his very soul,

and out will flow his very soul, blazing and shining and burning its way right through the world. In his inspiration he gives his life, and in giving his life to the world he becomes himself a heaven of light and life, and love and joy.

Stop fretting and regretting, and catch a ray of this light, and hold it, and follow it. Be satisfied though you can get but a glimpse of it. The full light of the perfect day is not given at once. It would be dazzling, and blinding, and confusing. Receive the faint gray in the east as a harbinger; delight in the far distant beautiful arrows of light as forerunners of splendor to come; enjoy the gorgeous coloring of the eastern sky as the dancing angels presaging the glorious orb. But even the full born morning is not like the noon-day brightness. That is a beautiful figure of the Christian's path, and is much like the path of the successful man generally. Its light is represented as at first faint, but sufficient to give hope and inspiration; following it, it "grows brighter and brighter even to the perfect day." And it is so penetrating that we become ourselves "burning and shining lights." Let us be patient, and courageous, and persevering, constantly, wisely, skilfully using the light we have, it will increase gloriously.

A CASE OF ARSENICAL POISONING.—A few weeks past a patient came to me with right side of face badly swollen. She complained of intense pain, and said she had been unable to sleep for a few nights. On examination I discerned that gums in region of second bicuspid were decomposed for some distance on both labial and lingual sides. The tooth, second bicuspid, which had been treated with arsenic a week prior, was extracted. After extraction, affected tissue was cut away, and parts cauterized with trichloroacetic acid, thoroughly syringing after with warm water. At a subsequent sitting a large portion of alveolus was removed—being loose—and with engine bur the diseased bone was burrowed out and another application of acid applied with the after-treatment of warm water, and a daily application of listerin for a week, when the parts became healed. This case impressed me with the idea that no dentist should use arsenic unless sealed with cement. Arsenic might be securely sealed in a crown cavity with gutta-percha or sandarac, but to use cement is the neatest, surest, safest and least slovenly way to securely retain the nerve destroying drug. Cotton and sandarac were employed in the case above.—*Geo. H. Belding, D.D.S., Calmar, Iowa.*

THE SECRET OF LONG LIFE.

M. Barthelemy Saint-Hilaire, the famous French scholar and politician, who recently entered on his ninetieth year full of physical and intellectual vigor, has been telling the inevitable interviewer how it is his days have been so long in the land. It is, we are told, the effect of strict adherence to the old precept "early to bed and early to rise," with steady work during waking hours. Every grand old man seems to have a secret of his own. Mr. Gladstone, we believe, attributes his longevity to his habit of taking a daily walk in all weathers, and to his giving thirty-two bites to every morsel of food. Oliver Wendell Holmes pinned his faith on equability of temperature.

Some aged persons give the credit of their long lives to abstinence from tobacco, alcohol, meat, or what not; others to their indulgence in all these things. One old lady, of whom we read not long ago as having reached the age of one hundred and twenty or thereabout, maintained that single blessedness is the real elixir vite, and she ascribed the death of a brother at the tender age of ninety to the fact that he had committed matrimony in early life. M. Ferdinand de Lesseps believed in horse riding. Mr. James Payn complains that in his boyhood he "got a little bored with too much horse." The Grand Francais seems to think that one can hardly have "too much horse." In a letter recently published, M. De Lesseps delivered himself on the subject as follows: "I shall always be deeply grateful to Larine, my riding master, who from my earliest years made me share his keen passion for horses, and I am still convinced that daily horse exercise has in a large measure been the means of enabling me to reach my eighty-fourth year in perfect health." Carlyle was also a great rider almost to the end of his long life, and he not only rode, but, we believe, groomed his horse himself. On the whole, it must be concluded that the real secret of longevity is a sound constitution prudently husbanded. The only general rules that can be laid down are those set forth by Adam in "As you like it:"

"Though I look old, yet I am strong and lusty;
 For in my youth I never did apply
 Hot and rebellious liquors in my blood,
 Nor did not with unbashful forehead woo
 The means of weakness and debility;
 Therefore my age is as a lusty winter,
 Frosty but kindly."

That is the whole secret of long life. Shakespeare knew it as well as any one, yet he died at fifty-two. *British Medical Journal.*

NOTICES.

The nineteenth annual meeting of the Vermont State Dental Society will be held at Brandon, Vermont, March 20th to 22d, 1895.

* * *

The next annual meeting of the Vermont Board of Dental Examiners will be held at Brandon, Vermont, Wednesday, March 20th, commencing at 2 o'clock P. M.

R. M. Chase, Bethel, Vt.

* * *

The Dental Digest is a new dental magazine, published by the Dental Protective Association. Well, why should not dental journals keep pace with dental colleges, especially when they have a specialty to serve?

* * *

An all-day clinic will be held under the auspices of the First District Dental Society on Tuesday, March 12th, at the New York College of Dentistry, 205 East Twenty-third street, New York City. A cordial invitation is extended to all members of the profession to be present. Any one desiring to clinic, or having anything of value to exhibit, is requested to communicate with the committee.

*James G. Palmer, Ch'n Clinic Committee,
18 W. Thirty-fifth street, New York City.*

* * *

The St. Louis Dental Society has elected the following officers for this year:

President, Dr. Walter M. Bartlett; Vice-President, Dr. M. R. Windhorst; Corresponding Secretary, Dr. F. F. Fletcher; Recording Secretary, Dr. P. H. Morrison; Treasurer, Dr. A. J. Prosser; Publication Committee, Drs. L. A. Young, P. H. Eislœffel, T. L. Pepperling; Committee on Ethics, Drs. Wm. N. Morrison, P. F. Helmuth, O. H. Marshard.

* * *

The Alabama Dental Association meets in Mobile April 9th to 12th. The Examining Board meets at the same place April 8th.

* * *

The Chairman of the Executive Committee of the Horace Wells Fiftieth Anniversary Celebration, announces that the papers read by Profs. Fillebrown and Garrettson at the meeting, and the speeches delivered at the banquet have been prepared for publication in the souvenir volume, and will be issued on the receipt of a sufficient number of subscriptions to cover expense. Price, \$1.50. The undersigned will receive subscriptions, receipt for same, and deliver the book on completion. *J. D. Thomas, Chairman.*

IN MEMORIAM.

At the annual meeting of the Southern Dental Association, held at Old Point Comfort, Virginia, August 5th, 1894, the death of five of its prominent and distinguished members was formally announced, and the undersigned appointed a committee to take cognizance of so startling and mysterious a dispensation of an everwise and kind Providence, in calling away this unusual number of our loved and honored members, and to report such action as the occasion demanded and is due the memory of men whose lives, labors, and accomplishments reflected honor and renown on our common manhood, on our Christianity and advanced civilization, on the claims of general science, and especially on that department, which, as dentists, we have devoted our talents and energies.

Your committee find in the necrology of the past year a striking verification of what has long been noted, and which has passed into an aphorism or proverb, *viz.*: "That death loves a shining mark." What more brilliant a galaxy could the dread archer have sought for his fatal shafts? Where could he have claimed as victims men more universally beloved, more deservedly honored, or more sincerely lamented than Drs. Winder, Wardlaw, McElhaney, Eames and Rawls? As the professional journals and secular press all over our Southland have published merited tributes to the lives and characters of our departed brothers, with biographical sketches more or less full and complete, and all testifying to their exalted virtues as men; their great attainments and grand achievements as members and representatives of their chosen profession, your committee feel that in discharging the trust committed to them, it is only necessary to submit the following resolutions, expressive of the sentiments and feelings of the Association they have the honor to represent; therefore, be it

Resolved, That in the death of Dr. R. Bailly Winder, Dean of the Baltimore College of Dental Surgery, and Professor of Dental Surgery and Operative Dentistry in that school; in the death of Dr. W. C. Wardlaw, ex-President of the Southern Association, and Professor in the Dental College of Atlanta, Georgia; in the death of Dr. G. W. McElhaney, one of our most distinguished practitioners and popular citizens of the "empire State of the South;" in the death of Dr. W. H. Eames, of the St. Louis School of Dental Surgery, and long the able editor of the *Archives of Dentistry*; and in the death of Dr. A. O. Rawls, a charter member of the Kentucky State Dental Association, member of the State Board of Dental

Examiners and ex-President of the Southern Association; that the Southern Dental Association has lost five of its most gifted, honored and justly distinguished members; that the dental science has been bereft of five of its shining lights and brightest exemplars. And we, their surviving fellow craftsmen, mourn and lament a dispensation, which is not only a social and domestic bereavement, but rises to the dignity of a public and professional calamity.

Resolved, That the members of the Southern Dental Association will ever hold in fresh and fond remembrance the names, the lives and characters, the labors and achievements of the departed, whose virtues and examples they will strive to emulate, and in whose footsteps they will ever be proud to walk.

Resolved, That our Association tender its heartfelt sympathy and sincere condolence to the stricken families of the deceased, that it shares with them the sorrow that shadows their own hearts and homes, and invokes for them the help and comfort of Him who holds our destiny in the hollow of His hand, and who has promised to "temper the wind to the shorn lambs."

Resolved, That this report and accompanying resolutions be spread on the records of the Association, and copies be sent to the families of the deceased.

(Signed) *Joseph R. Woodley, Ch'n,*
Francis Peabody,
R. R. Freeman,
Committee.

THE HORACE WELLS PERMANENT MEMORIAL.

UNDER THE AUSPICES OF THE AMERICAN DENTAL ASSOCIATION.

To the Dental Profession of America:

The Central Executive Committee appointed by the President of the American Dental Association is as follows: Dr. James Truman, Dr. Wilbur F. Litch, Dr. S. H. Guilford, Dr. E. C. Lirk, Dr. J. D. Thomas, Chairman and Treasurer.

This committee has been completed in its organization by including in its membership the Presidents of all dental societies throughout the United States.

It is hoped to secure enough money to erect a bronze statue of Horace Wells in the National Capital. The details of the style and character of the statue, as well as its definite location, will be decided on at the next meeting of the American Dental Association, to be held at Asbury Park, N. J.

The committee takes pleasure in calling your attention to this opportunity for doing an act of justice to the memory of a worthy

member of our profession, whose discovery has been of such incalculable benefit to humanity, and which has been so great an honor to our profession. You are invited to contribute whatever amount of money you may feel able and willing to donate to the fund, and use your influence toward bringing our plan to a successful issue in a manner befitting the object.

Contributions may be sent by any member of the profession through the President of his local society, or direct to the Treasurer, Dr. J. D. Thomas, 912 Walnut street, Philadelphia. An official receipt will be issued by the Treasurer for all contributions. The full list of contributors will be embodied in the pedestal of the memorial.

J. D. Thomas, Ch'n Central Executive Committee.

The Executive Committee requests that all who desire copies of the souvenir volume of the meeting held at Philadelphia December 11th, 1894, in celebration of the fiftieth anniversary of the discovery of anesthesia by Horace Wells, will promptly forward their names to the Chairman, in order that the number of copies to be printed may be determined on. The price has been fixed at \$1.50 per volume, postage free to all parts of the United States; foreign countries at regular postage rates.

Dr. W. O. Kulp, of Davenport, Iowa, a prominent dentist of the Northwest, died last January at his residence. He was a skilful operator, a good writer, an interesting speaker, and a useful member of the profession.

FIRST AID.

She had attended the ambulance classes and she obtained the certificate. The street accident she had earnestly prayed for took place. A man had broken his leg. She confiscated the walking-stick of a passer-by, and broke it into three pieces for splints. She tore her skirt for bandages. When all was completed she summoned a cab, and took her patient to the hospital.

"Who bandaged this leg so creditably?" inquired the surgeon.

"I did," she blushing replied.

"Well, it is most beautifully—most beautifully done; but you have made, I find, one little mistake. You have bandaged the wrong leg."

Dental Review.